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Resurvey of Nutrition in Newfoundland—1948[1]

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IN THIS paper I wish to summarize for you the recent survey of nutrition in Newfoundland (1) which has demonstrated so well the important contribution of bread and flour enrichment and fortification of margarine to the health and welfare of the Island people.

Newfoundland is an island located off the mouth of the St. Lawrence River, approximately the size of the New England states in area with a population of about 325,000 people who are descendants of English, Scottish, and Irish settlers. Approximately 60,000 people live in the capital, St. John's, and the peninsula on which it is located. The remaining population resides in outports which are small fishing villages on the water fringes of the island.

For practical purposes the outports are isolated from each other and from St. John's, except by boat which is feasible only during the summer months. Because there is almost no tillable soil around these outports and in the interior of Newfoundland, agriculture is practically nonexistent. The people of Newfoundland, therefore, are almost entirely dependent on imports for their food, except fish which is their chief export and cash crop.

1944 Survey

Since almost all food is imported, the per capita food supply can be more accurately estimated there than in most places. In 1944 the survey group (2) estimated the per capita nutrient supply as compared to the National Research Council's Recommended Daily Allowances as follows:

Protein and calories	normal
Thiamine	68%
Riboflavin	49%
Calcium	42%
Vitamin A	31%
Ascorbic acid	28%

In the 1944 survey clinical examinations were conducted on 868 unselected people, part of whom lived in St. John's and the remainder in several of the outports on the eastern and southern coasts. In addition, chemical analyses of blood and urine of nearly half the subjects were made for hemoglobin, serum protein, phosphatase, vitamin A, carotene, thiamine, riboflavin, and ascorbic acid. The survey revealed a high prevalence of clinical signs attributed to chronic deficiency of vitamin A, riboflavin, and ascorbic acid, and low values for these nutrients were found in the blood or urine. Also noted were extensive dental caries. No pellagra was encountered, although signs suggestive of chronic niacin deficiency of mild degree were encountered frequently. Peripheral neuritis was infrequently observed, but low excretion of thiamine in the urine (less than 50 mcg. per gram of creatinine in 44 per cent of the subjects), together with subjective symptoms, could be interpreted as evidence of frequent occurrence of less severe degrees of thiamine deficiency. Signs of rickets were infrequently encountered. No evidence of protein deficiency was observed, and on the whole the values recorded both for hemoglobin and for blood phosphatase were satisfactory. Records of average heights conformed fairly closely with the standards of comparison chosen, but body weights on the average were somewhat lower, and muscular development of many subjects was poor.

Program for Improving the Nutrition

Between the 1944 and the 1948 surveys specific efforts were made to improve nutrition. They comprised a program for public education in nutrition, distribution in the schools of a hot milk drink, distribution of cod-liver oil, distribution to certain individuals of concentrated orange juice, and improvement in the quality of margarine and white flour through fortification of the margarine with vitamin A and enrichment of the flour with thiamine, riboflavin, niacin, iron, and calcium.

EDUCATIONAL EFFORTS

Increased emphasis on nutritional considerations had entered into the radio advertising of processed foods. The importance of nutrition in the prevention and treatment of tuberculosis had been emphasized

[1] Presented before the Massachusetts Dietetic Association in Boston, on December 6, 1949.

in an excellent colored motion picture film. The film, prepared in 1948 by the Newfoundland Tuberculosis Association, had been shown not only in St. John's but also in many outports. Other efforts to teach improved dietary habits had been made by the Department of Public Health and Welfare, the Department of Education, and various private organizations, such as the Red Cross.

In 1947 an experienced nutritionist was added to the staff of the Department of Public Health and Welfare. Her work was effected through the teachers in the schools, the women's civic bodies, and the public health nurses. Another innovation was instruction in nutrition in the teacher's training school at Memorial College, St. John's. A pamphlet on nutrition designed especially to meet conditions in Newfoundland was distributed in 1947 to all school teachers. Other methods of approach included weekly radio talks, press articles, and talks to adult educational groups.

Little of this educational activity got under way before the early months of 1947. That it had significantly influenced the nutritional condition of the people by the time of our resurvey is doubtful. Dietary habits change slowly.

SCHOOL FEEDING

Government resources did not permit the undertaking of a full-scale school feeding program. What did occur was the free distribution to a large majority of the schools of nonfat dried milk powder. This was flavored with cocoa and sweetened with sugar, and from it a hot drink was prepared which the children liked and drank in cups or mugs they brought to school. The average serving was from 4 to 6 oz. (120 to 180 cc.). The hot drink program was initiated in a small number of schools in 1946. The formula was improved, and distribution was extended in the school year beginning September, 1947. The powder had the following composition:

Spray-dried, nonfat milk powder	70%
Sugar	22%
Cocoa	8%

The quantity of this powder distributed in the school year 1947–48 was 426,762 lb. (194,000 kg.), or about 8.5 lb. (3.9 kg.) per child to 50,000 grade school children out of a possible total of 70,000. It went for the most part to the children of the outports. The school year ran from September 1 to June 30, but the hot milk drink was usually not given in the relatively warmer months of September and June, when the schools as a rule were unheated and facilities were not at hand to heat the drink. Allowing for this and for the Christmas and Easter holidays and assuming also that school attendance was for five days a week, we estimate that each child obtained 24 gm. powder a day for 160 days of the year. Thus for a full year the contribution would augment the diet per day per child by no more than 38 calories, 2.7 gm. protein, 0.03 mg. thiamine, 0.15 mg. riboflavin, 0.10 mg. niacin, 97.0 mg. calcium, and 0.07 mg. iron.

Also, in the three winter months of the school year 1947–48, free cod-liver oil was distributed. The total amount supplied was 3623 gal. (16,470 liters) which theoretically may have provided a teaspoonful each day for 82 days for each of some 55,000 of the estimated 70,000 grade school children. However, this was not accepted well everywhere. Cod-liver oil is a product of the fisheries, and perhaps because of this it possessed less prestige in Newfoundland than do other less familiar medicinal preparations. It was not ingested in the school under the teacher's eye, and we heard much doubt expressed in several districts as to whether many of the children actually consumed it.

Another item distributed free in 1947–48 was concentrated orange juice. It went to expectant and nursing mothers and to infants under one year of age. It was said to contain 220 mg. ascorbic acid per 100 gm., and the quantity dispensed was 880 gal. (4000 liters). However, were this amount to be divided equally among the estimated total of 23,000 mothers and infants, each individual would have received from it only 1.1 mg. ascorbic acid daily for one year.

MARGARINE FORTIFICATION

All margarine sold in Newfoundland for years past had been manufactured in Newfoundland from imported fats. After January, 1945, all of it was fortified with vitamin A. The required content of vitamin A was made 30 I.U. per gram in 1945 and 45 I.U. per gram after January, 1946. Imports of fat for making margarine were estimated as 9 million lb. (4,082,000 kg.) in 1944, and actual imports in that and subsequent years closely approximated that amount. The annual importation represents about 12.7 kg. per person. Fortified to the level of 45 I.U. per gram and equally distributed, this would provide per person per day 1575 I.U. vitamin A.

The contribution would double the estimated provision per person of vitamin A in 1944. This involves the assumption that no margarine was fortified before January, 1945, which is not strictly true. An undetermined amount was fortified, but only to the level of 10 or 15 I.U. per gram. In any case, the increase represented a significant alteration of the nutritional situation.

FLOUR ENRICHMENT

Cognizant of the large contribution of white flour to the total calories of the diet, the government of Newfoundland took steps in 1943 to improve the nutritional quality of this product. Enrichment of white flour with thiamine, riboflavin, niacin, and iron was made compulsory. In consequence, begin-

ning with the fiscal year 1944–45, all imported white wheat flour has contained per pound (0.46 kg.), a minimum of 2.0 mg. thiamine, 1.2 mg. riboflavin, 16 mg. niacin, and 13 mg. iron. An additional requirement was imposed in October, 1947, namely, the inclusion of bone meal in an amount sufficient to provide not less than 500 mg. calcium per pound. No flour is milled in Newfoundland; hence, except for an insignificant amount introduced by smugglers and a very small amount of packaged flour used for cake and pastry making, all white flour consumed has been enriched. Except for St. John's, which received enriched flour as early as April, 1944, this happened after our survey in 1944. In point of fact, we witnessed in August, 1944, the arrival at the outports of Fortune Bay of the first shipments of enriched white flour.

Mention was made in our earlier report of the relatively low provision by the average Newfoundland diet of thiamine, riboflavin, and calcium. The estimated figures per person were: for thiamine, 0.90 to 0.96 mg.; for riboflavin, 0.80 to 1.03 mg.; and for calcium, 360 to 415 mg. Flour enrichment approximately doubled these figures, bringing all of them close to the Recommended Allowances. Furthermore, by this enrichment the supplies of niacin and iron, which were thought to be borderline in adequacy in 1944, were substantially increased.

1948 Resurvey

The resurvey was undertaken in the hope of being able to evaluate the effect on health of the several measures undertaken by the government. The physicians who participated were with two exceptions (Aykroyd and Shank) members of the group which conducted the survey in 1944. The season of the year was the same (August). The same localities were studied as before, with a few exceptions. The number of persons examined was the same (868), and the same criteria were adopted for judging abnormality. A feature of this study, which probably is unique in nutritional investigations, is that 227 individuals examined in 1944 could be re-examined by the same examiners four years later.

VITAL STATISTICS

As evidence of poor health in Newfoundland in 1944, we cited in our former paper the reported crude mortality rate, the death rate for tuberculosis, and the infant mortality rate. These rates were high in comparison with those prevailing in more favored regions. They now are lower than they were.

Crude Mortality Rate

The crude mortality rate per 1000 population (deaths from all causes) for the five-year period 1940–44 inclusive ranged from 11.4 to 12.5, an average annual rate of 12.1. The rate for 1947 is not yet available, but that reported for 1945 was 10.4 and that for 1946, 10.5. These later rates compare favorably with those of favored regions whose racial stocks resemble those of Newfoundland and whose populations, as in Newfoundland, are relatively stable, that is, unaffected greatly either by immigration or emigration.

Tuberculosis Death Rate

Public health authorities consider that the nutritional status of a population strongly influences the prevalence and severity of tuberculosis. The death rate for tuberculosis always tends to increase in periods of caloric deprivation; it also is suspected that a food supply which is adequate in calories but deficient in certain nutrients, notably vitamin A, calcium, and riboflavin, may lower resistance to tuberculosis. While factors other than nutrition unquestionably are involved, there is reason to believe that the high tuberculosis death rates reported for Newfoundland and cited in our publication of 1944 were to some extent related to nutritional deficiencies. The records of the years 1945 and 1946 suggest improvement, and although this in turn may be attributed in part to other factors than nutrition, it is worth noting.

The reported crude death rate for pulmonary tuberculosis per 100,000 of the population was 114 in 1945 and 101 in 1946, in contrast to an average annual rate of 135 for the five-year period 1940–44. Bearing on this question, also, is the fact that from 1945 onwards the Department of Public Health and Welfare and the Newfoundland Tuberculosis Association conducted jointly a vigorous case-finding campaign almost island-wide in scope. In 1948 roentgenologic examinations were being made at a rate of 3000 monthly. The resulting diagnosis of cases of tuberculosis that otherwise might have passed unnoticed may temporarily have affected the recorded death rate. The record, therefore, may reflect less of a decline in deaths from tuberculosis than actually occurred. Many deaths in the outports of Newfoundland have been reported, of necessity, by persons untrained in medicine, and the causes of death assigned have been correspondingly inaccurate.

Infant Mortality Rate

Most striking among the indices of improvement in the health of the Newfoundlanders between 1944 and 1948 are the reported data for the deaths of infants less than one year of age. The average annual rate for the five-year period 1940–44 for all of Newfoundland was 96.0 per 1000 live births, whereas for 1945 it was 74.2 and for 1946, 76.3. In St. John's, for which the rates are more reliable, the corresponding figures are: the average annual rate for the period 1940–44, 102.3; the rate for 1945, 92.2; for 1946, 77; and for 1947, 61.0. The reported rate for still-

births per 1000 live births also showed improvements. In the decade 1937–46, it ranged from 35.0 to 45.2, whereas in 1947 it was 27.9.

GENERAL IMPROVEMENTS

The comment has already been made that the people we encountered in 1948 were better dressed than they were in 1944, and that their homes looked better tended. This was true not only in St. John's but for the most part also in the outports. Of more significance was the evident increased alertness of the persons we examined. Gone to a great extent was the apathy so noticeable in 1944. The children no longer waited patiently for their examinations. They clustered around the tables of the examiners unless they were shooed away. More monitoring was required. They were interested and curious, as children ought to be. They swarmed over the decks of the motorboat, *Christmas Seal*, when we docked at outports and had to be herded off. Also they engaged in games and played, whereas the absence of play had been remarked upon before.

Also the more extreme degrees of underweight for height and age were encountered less frequently.

CLINICAL IMPROVEMENTS

Clinical examinations in 1948 were limited, as they were in 1944, to a search for lesions of the exposed parts of the body, including the mouth. The lesions recorded were those which students of nutrition have attributed to deficiencies of vitamins or minerals. Also recorded was the presence or absence of the tendon reflexes and vibratory sensation of the lower limbs. The criteria of abnormality were the same as those adopted in 1944, but the search for suspected signs of malnutrition was perhaps more thorough and the recording of the findings more systematic. Individuals who had been examined in 1944 and presented themselves again in 1948, were re-examined without reference to previous observations, and their records and those for the entire sample were not assembled for comparison with the records of the 1944 survey until the resurvey had been completed.

The occurrence of several lesions encountered in 1948 is compared in Table 1 with that of the same abnormalities found in 1944. The prevalence of several types of lesions had decreased; for some types an increase was apparent; for others there was little change. When the record of the smaller sample, consisting of 227 persons examined in 1944 and re-examined in 1948, is inspected, the differences are in general the same as those between the total samples. There was less dry, staring hair in 1948, less mild follicular abnormality of the skin, less abnormality of the skin of the face, less blepharitis, less angular stomatitis and cheilosis, and much less abnormality of the tongue. On the other hand, the prevalence of other lesions of the skin had not decreased, and that of hyperemia and swelling of the gums had increased. Likewise the prevalence of severe caries and loss of teeth was greater.

TABLE 1

*Clinical findings of all persons examined in 1944 and 1948**

SIGNS OF ABNORMALITY	PERCENTAGE OF NEWFOUNDLANDERS			PERCENTAGE OF SUBJECTS IN NEW YORK STATE SURVEY, 1947†
	1944	1948	Difference	
Dry, staring hair	10.1	2.5	−7.6	0.17
Skin abnormalities				
Mild follicular changes	37.7	21.5	−16.2	
Perifolliculosis	2.0	6.6	4.6	
Suborbital pigmentation	16.5	1.7	−14.8	
Eye abnormalities				
Thickening of conjunctiva, of all grades	76.7	57.5	−19.1	0.8
Hyperemia of eyes, all grades	46.4	23.2	−23.2	
Blepharitis, grade 2 or greater	6.3	1.7	−4.6	
Mouth abnormalities				
Angular stomatitis	21.7	9.7	−12.0	0.6
Hyperemia of gums	25.8	35.5	9.7	1.3
Swollen gums	45.2	53.1	7.9	
Tongue abnormalities				
Magenta tongue	10.2	0.3	−9.9	0.14
Atrophic tongue	18.4	3.9	−14.5	5.2

* Condensed from Table 3, Aykroyd, W. R., *et al.* (1).

† Comparable findings during physical examination of first, fourth, and tenth grade students in New York State in December, 1947 (3).

It is recognized that the lesions discussed here are not of necessity pathognostic of nutritional deficiency: injury or disease in no way related to nutrition can provoke any or all of them. However, it must be recognized that nutritional deficiencies, as has been shown experimentally, can themselves alone account for many of these lesions, either directly or by conditioning the tissues to injury from other causes. Furthermore, it is to be expected that severe chronic lesions resulting from long years of deficiency of a vitamin or mineral cannot be cured in months or even years by treatment which is limited to providing no more than a good but not unusually high dietary allowance of the vitamin or mineral in question. Clinical experience has clearly shown that to obtain a rapid and complete response to vitamin or mineral therapy, it is usually necessary to give doses which are several times as large as the allowances which suffice for the satisfactory maintenance of the health of the individual. These reflections should be borne in mind in considering the observations here reported.

Dry, Staring Hair

Dry, coarse, lackluster hair (rough coat) is a common accompaniment of malnutrition in animals. Similar loss of luster is seen in the head hair of man.

In man, however, its recognition is made difficult by differences in the care of the hair (e.g., in washing, brushing, or use of toilet lotions). The New York State nutrition survey of 1947 (3) showed an incidence of "straight, staring hair" of 0.17 per cent. For the total sample in Newfoundland the percentage figures for 1944 and 1948 were 10.1 and 2.5, respectively, while for the 227 persons examined in 1944 and re-examined in 1948, the figures were 8.4 and 1.8, respectively.

Skin Changes

The prevalence of xerosis, follicular keratosis, and cracked skin was too low both in 1944 and 1948 to justify conclusions from differences in prevalence between these years. The Newfoundland survey recorded 5.6 per cent of "follicular keratosis" in 1948. In 1947 the New York State nutrition survey recorded a 3.6 per cent incidence of "keratosis folliculosis." However, the abnormality which is designated as "mild follicular changes," by which is meant the folliculosis which resembles permanent "gooseflesh", was encountered in Newfoundland with sufficient frequency to warrant the conclusion that a statistically significant decrease in prevalence had occurred. This lesion is possibly related to deficiency of vitamin A.

On the other hand, the lesion designated "perifolliculosis," in which enlargement of capillaries leads to the formation of a reddish or brownish halo around the follicles had increased significantly in prevalence. Deficiency of ascorbic acid, either separately or combined with other deficiencies, may be involved in this.

For suborbital pigmentation, the decline was striking: from 16.5 to 1.7 per cent. Suborbital pigmentation is not generally thought to be related to vitamin deficiency. It occurs in undernutrition or semi-starvation, but the diet in Newfoundland was adequate with respect to calories both in 1944 and 1948, and its prevalence there in 1944 cannot be explained by lack of calories.

Eye Changes

The occurrence of thickening of the conjunctiva was very high in Newfoundland in 1944. Such thickening is commonly observed in adults everywhere. It is, however, generally uncommon in children. Wilder (4) compared its recorded prevalence in the 402 children of grade school age in the Newfoundland sample of 1944 with that observed in examining some 300 Minnesota children. The prevalence was over 70 per cent in Newfoundland and only about 4 per cent in Minnesota. The 1947 New York State nutrition survey recorded this condition in 0.8 per cent of the subjects. The causes of this abnormality are not known, but in the 1944 survey a significant correlation was demonstrated in the youngest age groups (five to ten years) between serum vitamin A levels and this lesion. Improvement with respect to it, in Newfoundland, is apparent from the statistically significant change in frequency of occurrence.

Improvement likewise was apparent in the prevalence of circumcorneal hyperemia and blepharitis. Some evidence that trauma from excessive glare may play an important part in producing blepharitis was obtained. At Harbour Mille, a village surrounded by bare gray rock where the light intensity was greater than in the other places where examinations were made, the prevalence of blepharitis in 1944 was 37 per cent. This is in contrast to the prevalence for all the outports taken together, which was 27.3 per cent, and for St. John's, which was only 17.3 per cent. Nevertheless, the prevalence at Harbour Mille decreased from 37 per cent in 1944 to 26.6 per cent in 1948, suggesting that improved nutrition had lessened susceptibility to the ill-effects of glare.

Mouth Changes

Angular stomatitis can be produced experimentally in man by restricting the intake of riboflavin. The prevalence of angular stomatitis in Newfoundland in 1944 was high. The statistically significant decrease in the occurrence of this lesion represents an improvement, attributable to increased riboflavin intake. The New York State nutrition survey recorded the incidence of "angular stomatitis" in 0.6 per cent of its subjects. This compares to 9.7 per cent in Newfoundland in 1948.

No scurvy was observed in 1944, but 25.8 per cent of the persons examined had obvious reddening and 45.2 per cent had swelling of the gums. The New York State nutrition survey recorded "non-specific gingivitis" in 1.3 per cent of its subjects. A well-controlled experiment (5) with human volunteers has produced evidence that such lesions may result from deficiency of ascorbic acid. The increase in their prevalence in 1948 is of interest, and suggests that the diet in Newfoundland is still deficient in this vitamin.

The prevalence of caries and of marked or complete loss of teeth was found to be higher in 1948 than in 1944. The difference was significant. Whether dental health will be improved by such measures as the increased use of evaporated milk containing vitamin D, the addition of bone meal to flour, and the distribution of cod-liver oil in schools is a question for the future. It may be suspected that one of the results of the increased purchasing power of the Newfoundlanders has been greater expenditure on candy and other sweets, with consequent ill-effects on teeth.

Tongue Changes

The most striking difference observed clinically in 1948 and in 1944 was in the appearance of the subjects' tongues. Magenta tongue, recorded in 10

per cent of the examinations of 1944, was carefully looked for in 1948 but was found in less than 1 per cent of the persons seen in the outports and not once in St. John's. The prevalence of hypertrophy of the papilla, involving more than the very tip of the tongue, was diminished to a statistically significant degree. These lingual lesions correspond closely to those which develop on the tongue of patients suffering from niacin deficiency.

Reflex Changes

Contrary to original expectations, the recorded instances of areflexia and lost vibration sense proved to be greater for 1948 than for 1944. However, these abnormalities were encountered so infrequently in both years that the differences lack significance even when the less critical test for significance (one chance out of twenty) is applied to them. It furthermore is improbable in the light of recent studies of human requirements for thiamine that the diet of many of these people, over the last few years, has been low enough to provoke peripheral neuritis (beriberi). However, other abnormalities for which lesser degrees of deficiency of thiamine may possibly have been responsible were frequently encountered in 1944 and were less evident in 1948. The statement applies especially to dyspepsia, constipation, listlessness, and apathy. It has been established by controlled experiments on human subjects that an allowance of thiamine sufficient to prevent peripheral neuritis may be insufficient to protect against the development of functional disturbances of the automatic and central nervous systems. In such experiments dyspepsia, constipation, listlessness, and apathy have developed early, to be followed later, when the degree of deprivation was more severe, by objective evidence of peripheral neuritis.

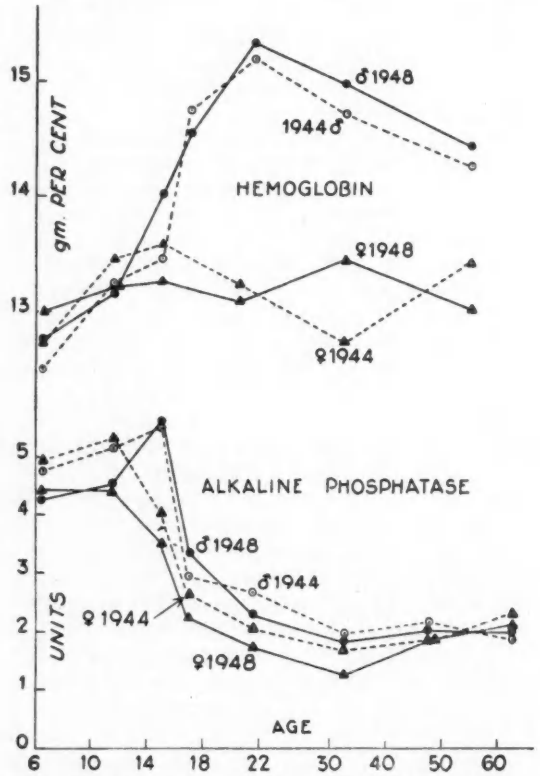

FIG. 1. *Average concentration of hemoglobin in blood and of alkaline phosphatase in blood serum by age, Newfoundland surveys, 1944 and 1948* (1).

BIOCHEMICAL IMPROVEMENTS

The chemical measurements made in 1944 were repeated in 1948 by procedures as nearly as possible identical with those used in the earlier survey (2). Blood was obtained by finger puncture. Hemoglobin (0.01 cc. blood) and the blood serum protein (0.005 cc.) were determined at the time of the survey with the gradient tube-specific gravity method. The balance of the blood serum determinations were made on samples shipped to St. Louis on dry ice. Urine samples (non-fasting) were preserved with acetic acid.

As before, thiamine and riboflavin were calculated per gram of creatinine excreted, since it was not

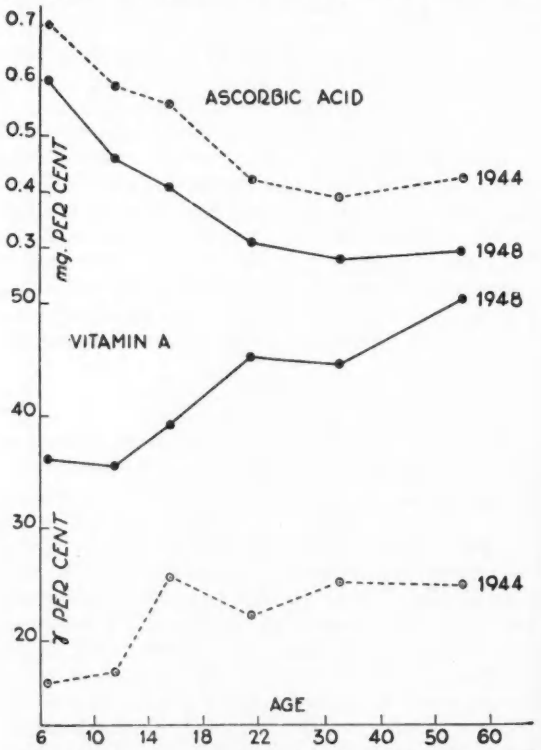

FIG. 2. *Average concentrations of ascorbic acid and of vitamin A in blood serum by age, Newfoundland surveys, 1944 and 1948* (1).

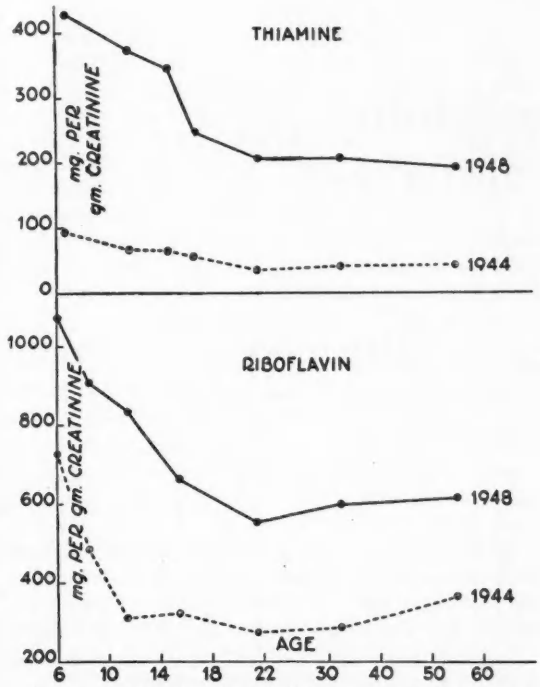

FIG. 3. *Average excretion of thiamine and riboflavin by age, Newfoundland surveys, 1944 and 1948* (1).

feasible to collect specimens during a fixed time interval. The use of the creatinine basis also helped to take into account the wide range of age and size in the group surveyed.

Analyses were performed on blood from a little less than half of the persons studied and on urine from a third. In the case of sixty-eight persons, chemical measurements made in 1944 were repeated in 1948.

On comparing the chemical data of 1948 and 1944, there was found to be little change in hemoglobin or serum alkaline phosphatase and a small decrease in serum ascorbic acid. In contrast, there were dramatic increases in the excretion of thiamine and riboflavin, and in the level of vitamin A in the serum.

Because an age effect was apparent with every substance measured, graphs are presented comparing age, or age and sex, and average concentrations of the substances measured. This also allows evaluation of possible changes between two surveys in different age groups. These findings are presented in Figures 1, 2, and 3.

Summary and Conclusion

It is obvious therefore that between 1944 and 1948 certain significant changes occurred in both the clinical signs of malnutrition and chemical evidences of their levels in the blood and urine. These include: (a) a decrease in the mild signs of vitamin A deficiency along with a doubling of its serum concentration; (b) a decrease in the signs of riboflavin deficiency along with a higher level of riboflavin in the urine; (c) a decrease in listlessness and apathy along with a higher level of thiamine in the urine; (d) a decrease in tongue lesions characteristic of niacin deficiency; (e) no improvement in the clinical signs related to ascorbic acid deficiency and a slight decrease in its blood level.

In summary, it can be said that those signs and symptoms of malnutrition which could have been expected to decrease in prevalence as a result of the fortification of margarine with vitamin A and the enrichment of flour with riboflavin, niacin, and thiamine were less frequently encountered and less severe in 1948 than in 1944, whereas the prevalence of lesions which could not have been affected by these measures remained unaltered or actually increased.

REFERENCES

(1) AYKROYD, W. B., JOLLIFFE, N., LOWRY, O. H., MOORE, P. E., SEBRELL, W. H., SHANK, R. E., TISDALL, F. F., WILDER, R. M., AND ZAMECNIK, P. C.: Medical resurvey of nutrition in Newfoundland—1948. Canad. M. A. J. 60: 329, 1949.

(2) ADAMSON, J. D., JOLLIFFE, N., KRUSE, H. D., LOWRY, O. H., MOORE, P. E., PLATT, B. S., SEBRELL, W. H., TICE, J. W., TISDALL, F. F., WILDER, R. M., AND ZAMECNIK, P. C.: Medical survey of nutrition in Newfoundland. Canad. M. A. J. 52: 227, 1945.

(3) TRULSON, M., HEGSTED, D. M., AND STARE, F. J.: New York State nutrition survey. 1. A nutrition survey of public school children. J. Am. Dietet. A. 25: 595, 1949.

(4) WILDER, R. M.: Sampling the nutrition of Minnesota children. Minnesota Med. 31: 299, 1948.

(5) LINGHORNE, W. J., MCINTOSH, W. G., TICE, J. W., TISDALL, F. F., MCCREARY, J. F., DRAKE, T. G. H., GREAVES, A. V., AND JOHNSTONE, W. M.: The relation of ascorbic acid intake to gingivitis. Canad. M. A. J. 54: 106, 1946.

Red Color in Strawberries

Scientists at the New York Agricultural Experiment Station, Geneva, have found that anthocyanin is the pigment which makes strawberries red. As little as one two-hundredth of an ounce to a pound of berries is enough. It has also been noted that a bright red color in the berries indicates good flavor and a high content of ascorbic acid.

In canning, two types of color changes have been noted: the loss of the original red and the development of a brownish off-color. These changes are now attributed to the loss of anthocyanin or red pigment. The browning reaction occurs rapidly when strawberry preserves are stored at high temperatures, but the change in color is gradual when storage temperatures are below 60° to 65°F.—*New York Times, June 26, 1949.*

Comparative Cost and Availability of Canned, Glassed, Frozen, and Fresh Fruits and Vegetables

Continuation of Study[1]

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As THE result of a comprehensive and long-term research program with the two-fold aim of obtaining data on the nutrients in foods after canning and information on the improvement of methods and equipment leading to greater retention of nutrients, the food canning industry is in the position to make the statement (1) that "we know more about the nutritional values of canned foods than is known about any other type of processed food."

To supplement the abundant information on the nutritive value of canned foods, a nation-wide survey was instituted in October, 1946, to obtain information concerning the economics and the availability of the edible portion of the most common fruits and vegetables, processed in cans, glassed, frozen, and fresh. As a result of the first year's study (2), it was found that "in general, canned foods were the most economical and showed the highest availability percentage, regardless of the size of the city or geographic location."

METHODS

General

The procedure for conducting the food cost study established in the first year (2) was continued without change. This was made possible through the continued cooperation and effort of the same nineteen schools of home economics chosen throughout the United States in such a manner as to include proportionate and representative population areas, i.e., cities of over 1 million population; 100,000 to 1 million; 50,000 to 100,000; and under 50,000 and including five geographic areas, i.e., West, West Central, North Central, Northeast, and Southeast.

[1] Supported by a grant from the Can Manufacturers Institute, Inc. Received for publication November 21, 1949.

The same fruits and vegetables were studied as before. These were chosen in the first place, not on an arbitrary basis but because of their economic importance in terms of quantities processed. The data on the amounts of these and several additional processed foods for comparison are compiled in Table 1.

In all fairness it must be noted that certain of the foods studied, i.e., beets, tomatoes, pears, and (until recently) grapefruit juice, are not processed in the frozen form and therefore zero availability on these materials cannot be viewed with prejudice. If this study had included such items as strawberries, broccoli, cauliflower, and rhubarb, the picture on their availability in cans would have been discouraging since these items are rarely if ever available in the retail market in canned form (Table 1). Again, as far as processed foods are concerned, it is important to note (Table 1) that these particular items are of relatively minor importance to the consumer in terms of quantity as compared to the twelve fruits and vegetables that were chosen.

No accurate estimate is available on the amounts of these four particular foodstuffs that are purchased as fresh produce.

Investigative Procedure

Although the previously established shopping procedure (2) was continued, it is well to emphasize that the central idea on which the shopping techniques were based was designed to simulate as closely as possible the purchasing habits of the housewife.

It should be pointed out again that all of the data on cost are calculated on the basis of the edible portion of the processed and fresh foods. Carefully weighed quantities of the fresh foods were actually purchased, prepared for cooking or eating according to uniform procedures, and the cost of the weighed edible portion calculated.

The percentages used for determining the edible portion of canned and glassed foods are as follows: asparagus, 70; green beans, 62; Lima beans, 78; beets, 68; corn, 68; grapefruit juice, 100; peaches, 66; pears, 57; peas, 65; pineapple, 66; spinach, 72; and tomatoes, 100. The edible portion of the frozen foods was considered to be 100 for all except peaches and pineapple, which were 80 and 75, respectively. However, the percentages used to calculate the edible portion were minimal, since in actual practice the liquids or juices from the vegetables and fruits are not generally discarded but are consumed for the most part.

The problem of presenting data on availability should be reviewed for purposes of clarification both as to choice of terminology and methodology. Perhaps "availability index" as defined and used in this study would be more accurate than "availability" in the finite sense of the word. The stores selected for shopping (three in number) were, by instruction, large markets and "probably self-service," so that no customer would be given "preference treatment" on the supply of scarce merchandise. The order of shopping these stores was uniform and was chosen in the first place in the order of "housewife preference," using such things as proximity to home, quality of produce, economy, cleanliness, and so on, as basic guides.

Since each of nineteen investigators had three stores in which to shop, the total potential number of store visits that might be made in any one shopping period to find an item would be fifty-seven. If an item could not be found by any investigator in any of the three stores visited, the item would be considered unavailable. This should not be taken to mean that it was unobtainable; it merely means that unless unusual circumstances prevail, the housewife would not be apt to shop in more than three stores for a particular item but would select a substitute. The 100 per cent availability figure was arrived at by dividing the number of "finds" by the minimum number of visits needed to "find" the item. If, for example, each of the nineteen investigators found the item in the first store visited, the availability of that item would be $19/19 \times 100$ or 100 per cent. This does not necessarily mean that the foodstuff in question was actually available in all of the three stores that each of the nineteen investigators might have visited. Under the circumstances cited, however, it is reasonable to define the item as 100 per cent available because each shopper had success on the first try. Any intermediate percentage for availability or "shopping success" is obtainable, therefore, by the following formula:

$$\frac{\text{number of times an item was found}}{\text{total visits made to find the item}} \times 100$$

Such an index of availability cannot take into account all aspects of the problem since such factors as (a) number of brands of a given food available in

TABLE 1

Comparison of tonnage of processed foods in 1947–48 and 1946–47

FOOD	TYPE OF PROCESSING			
	Canned in cans or glass*		Frozen	
	1946	1947	1946	1947
	tons	*tons*	*tons*	*tons*
Asparagus	57,200	47,913	14,158	5,369
Beans				
Green and wax	229,275	163,638	20,488	15,451
Lima	21,835	27,550	25,047	33,789
Beets	88,050	42,275	none	none
Broccoli	none	none	12,895	4,509
Cauliflower	none	none	6,619	2,677
Corn (cut)	386,884	326,113	21,213	13,280
Grapefruit juice	72,364	48,813	none	none
Peaches	484,381	454,643	32,570	13,517
Pears	139,470	146,638	none	none
Peas	511,663	413,988	70,302	65,893
Pineapple	indeterminate†	indeterminate†	11,503	2,955
Rhubarb	none	none	5,283	769
Spinach	105,603	48,863	19,093	11,640
Strawberries	94	1,470	39,030	54,518
Tomatoes	298,213	346,363	none	none

* No accurate breakdown by can or glass available. Careful estimates place the total tonnage of the foods studied packed in glass at less than 1 per cent.

† Indeterminate because of many types of packs (juice, chunks, crushed, sliced, and so on). Figures for all categories of canned pineapple for 1947–48 are 11,429,144 cases of pineapple and 8,893,631 cases of pineapple juice.

a given store; (b) different ways that the product is packed, i.e., sliced, crushed, or chunks of pineapple; or (c) the actual number of days of the shopping year that the product is on the store shelf, and so on.

The "availability index" as employed in this study is, however, a reasonable measure of "shopping success" that the average housewife would have in attempts to purchase the twelve food items investigated.

RESULTS AND DISCUSSION

Although twelve monthly shopping periods were included in the present study as before, the individual monthly data on cost and availability of the twelve individual foodstuffs are deleted from the present report and their twelve-month average cost and availability figures are taken as representative. This again is a reflection of the observation gained in the first year's study, namely that the individual processed foods show a reasonable month-to-month stability in price and only tend to show price trends over longer periods of time. This is an understandable result since, in general, crops are processed each year in amounts which will accommodate normal consumer demand plus a small carry-over. Again, as in the previous study (2), the cost of fresh foods fluctuated over a greater range and for the most part bore an inverse relationship to availability. For purposes of direct comparison both as to the cost of processed food and as to price changes from year to year, the cost data on the individual fresh food items are also presented as yearly averages.

The data on the average cost and availability of the twelve fruits and vegetables studied with the comparable information on last year's study, along with the relative percentile changes for each foodstuff considered are compiled in Tables 2 and 3, respectively. It will be noted that data on cost and availability of foods processed in glass are not considered in Tables 2 and 3, since their extremely limited availability gives this category little practical importance and presents too little data to be fairly presented here.

An examination of the data in Table 2 on the comparative cost of the several processed and fresh foods makes it evident that the cost of frozen foods continues to be at least 50 per cent higher than comparable products in cans. The cost of fresh foods was, as before, more variable and averaged less than the canned on green beans, beets, peaches, pears, and pineapple. From the data on availability, however, it appears (Table 3) that fresh green beans, peaches, and pears were considerably "less available" and that their more advantageous "average" price is a reflection of their lower "in season" cost. It is interesting to note (Table 3) that the availability of canned peaches, pears, and pineapple increased significantly in 1947–48 over 1946–47, whereas only a slight increase in availability of frozen peaches and a marked decrease in availability of pineapple in the frozen form was noted (pears are not frozen).

The marked increase in availability of the three fruits mentioned is probably due to the combined effect of increased supplies of sugar and cans during the period investigated. Another factor influencing the increased availability of pineapple during 1947–48 was the restoration of nearly normal shipping facilities which had been impaired before due to the war and to maritime strikes.

Of the fresh foods studied, only corn and peaches

TABLE 2

Comparison of average cost per pound of edible portion of twelve canned, frozen, and fresh fruits and vegetables in 1947–48 and 1946–47

FOOD	COST PER POUND, E.P.						CHANGE		
	1946–47			1947–48					
	Canned	Frozen	Fresh	Canned	Frozen	Fresh	Canned	Frozen	Fresh
							%	%	%
Asparagus	$.52	$.64	$.64	$.48	$.62	$.59	−8	−3	−8
Beans									
Green	.28	.51	.25	.29	.45	.26	4	−12	4
Lima	.31	.53	.65	.31	.56	.58	0	4	−11
Beets, whole	.21	—*	.18	.22	—*	.17	−5	*	−6
Corn, whole kernels	.24	.37	.37	.26	.38	.39	8	3	5
Grapefruit juice	.10	—*	.18	.08	—*	.18	−20	*	0
Peaches, halves	.27	.42	.19	.26	.40	.20	−4	−5	5
Pears, halves	.43	—*	.23	.41	—*	.22	−5	*	−4
Peas	.26	.38	.52	.26	.39	.56	0	3	8
Pineapple	.33	.48	.32	.37	.44	.34	12	−8	6
Spinach	.17	.31	.22	.16	.31	.24	−6	0	9
Tomatoes	.16	—*	.30	.16	—*	.32	0	*	7

* These foods have not been processed in frozen form, with the exception of grapefruit juice which has been concentrated only recently.

showed a large increase in availability over 1946–47, while eight of the twelve foods were in general less available.

Although the information presented in Tables 2 and 3 represents only the cost and availability of the various foods on an average national basis, an examination of the cost indices, based upon canned goods taken as 100, for cities of different size and different geographic areas presents some interesting points (Table 4). Again, as in the first year's study (2), similar cost relationships usually hold between the various categories of processed food regardless of the size of city and geographic territory. If the cost indices are broken down to compare cold months (November through April) with warm months (May through October), it is evident (Table 4) that small fluctuations usually exist between "warm month" and "cold month" costs except for foods in the fresh category which, as expected, are less costly in the warm months due to their generally greater availability. The cost of fresh foods also tends to decline as the general population of the city decreases.

TABLE 3

Comparison of availability of canned, frozen, and fresh fruits and vegetables in 1947–48 and 1946–47

FOOD	AVAILABILITY						CHANGE		
	1946–47			1947–48					
	Canned	Frozen	Fresh	Canned	Frozen	Fresh	Canned	Frozen	Fresh
	%	%	%	%	%	%	%	%	%
Asparagus	79	58	22	72	57	21	−9	−2	−5
Beans									
Green	70	55	51	76	55	56	9	0	10
Lima	43	48	17	53	56	10	23	17	−41
Beets, whole	58	—*	57	49	—*	53	−16	*	−7
Corn, whole kernels	79	58	27	77	58	36	−3	0	33
Grapefruit juice	77	—*	70	72	—*	68	−6	*	−3
Peaches, halves	69	47	40	81	48	50	17	2	25
Pears, halves	62	—*	46	82	—*	38	32	*	−17
Peas	84	57	40	86	58	30	2	2	−25
Pineapple	19	38	29	37	23	26	49	−39	−10
Spinach	85	58	48	78	56	45	−8	−3	−6
Tomatoes	66	—*	68	78	—*	71	18	*	4

* These foods have not been processed in frozen form, with the exception of grapefruit juice which has been concentrated only recently.

TABLE 4

Cost indices for 1947–48 for fresh and frozen foods according to size of city and geographic area, using index for canned foods as 100

CITY SIZE AND REGION	AVERAGE INDEX					
	8 frozen foods			12 fresh foods		
	12 months	Cold months*	Warm months†	12 months	Cold months*	Warm months†
Size of city						
Over 1 million	160	159	162	130	141	120
100,000 to 1 million	161	169	166	126	132	112
50,000 to 100,000	164	158	171	115	113	105
Under 50,000	161	164	161	115	118	105
Geographic area						
Northeast	155	163	157	120	123	112
Southeast	153	169	162	120	127	109
North Central	159	161	174	142	141	127
West Central	163	162	160	101	102	96
West	161	159	163	119	132	101
Whole nation	—	162	164	—	135	115

* November through April.

† May through October.

SUMMARY

The second year's findings of a three-year, nationwide survey of the cost and availability of canned, glassed, frozen, and fresh fruits and vegetables are reported. As in the first year's study, the cost of foods processed in cans continued to average at least 50 per cent less than frozen fruits and vegetables. Marked increases in the availability in cans of such items as peaches, pears, and pineapple were noted which reflects the relaxation of wartime controls on sugar and cans.

Although the period studied was one of generally increasing prices, the costs of the processed foods, both canned and frozen, showed no consistent overall increases.

The national averages of individual foods costs are a fair representation of the sizes of the various cities and the geographic areas, and little fluctuation was evidenced for the several types of processed foods. The cost of fresh foods tended to vary inversely with availability.

ACKNOWLEDGMENTS

The authors are indebted to the faithfulness and industry of the numerous investigators who accumulated the data which made this study possible and greatly appreciate the collaborative supervision that was given to the project by the following home economics departments:

West: Utah State Agricultural College, Logan; University of California, Los Angeles; Oregon State College, Corvallis; and University of California, Berkeley.

West Central: Texas State College for Women, Denton; Kansas State College, Manhattan; University of Minnesota, Minneapolis; and Iowa State College, Ames.

North Central: University of Chicago; Wayne University, Detroit; University of Wisconsin, Madison; and Ohio State University, Columbus.

Northeast: Massachusetts State College, Amherst; Pratt Institute, Brooklyn; Cornell University, Ithaca, New York; and University of Maryland, College Park.

Southeast: University of Alabama, University; University of Tennessee, Knoxville; and University of Kentucky, Lexington.

REFERENCES

(1) Food Industries Staff Report: Survey shows high nutrient levels in canned foods. Food Industries 21: 92 (January), 1949.

(2) Krehl, W. A., and Cowgill, G. R.: Comparative cost and availability of canned, glassed, frozen, and fresh fruits and vegetables. J. Am. Dietet. A. 24: 304, 1948

Purchasing Specifications

In purchasing our organization has a buyer in each of the four cities in which we operate who is instructed to buy only certain selected brands and grades of merchandise. In order to use standardized recipes in each city, we are forced to set up these specifications for all items—meats, fish, poultry, fruits and vegetables, both canned and fresh, flours, and general provisions.

Much of our buying is done through the central office by contract and carload lots, and supplies are allocated to each city as needed. For canned goods or frozen vegetables and fruits, samples from each purveyor are gathered together at one time. These are opened, numbered, and put on a table with only the number to identify them. The best product, according to our specifications, is selected. However, in one case last year, we opened, inspected, and made pies of fourteen packs of *frozen apples*, only to find that none met our standard for flavor. We therefore searched further for a better product.

A few years ago we had trouble in stating the amount of *salt* to be used in a recipe, because as the recipes were used in the various cities, soups and sauces would be too salty or not salty enough. We have now settled on one brand of cooking salt which contains no added magnesium salts. Our *flour* has proved to be another hurdle in using standardized recipes, but we have now succeeded in procuring flour with the same analysis for each store for each specific use.

We also have certain size and quality specifications for meats, fish, and poultry. *Pork chops* as served on our counters have more eye appeal if cut from U. S. #1 pork loins weighing 10 to 12 lb., than those cut from smaller or larger loins. For *fried chicken*, we specify 40 to 42 lb. per dozen, or 3½ lb. broilers. This size, we have found, is best for eye appeal and customer satisfaction for our type of service, and we insist on a uniform size within the weight range specified. Our specifications call for *beef ribs* weighing 28 to 32 lb., because that size gives us the correct slice for our plates and does not need to be cut too thin to meet our portion requirements.—*Excerpted from a talk by Winifred Eliason given before the Illinois Dietetic Association at Monticello, November 11, 1949.*

The Cold War on Dental Caries[1]

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TODAY, the world is conscious of the term "cold war." Today's fight against dental caries affords a comparison between a cold and a hot war. The cold war represents the unceremonious, intense research work being conducted in our major dental colleges. The hot war is analagous to the continual bombardment of commercial announcements upon us, the public. These announcements are so skillfully worded that our hopes soar with visions of a personal, active attack against our continual foe—tooth decay.

Unfortunately, as with many other publicity stories or advertisements, although we get a good report, only the individual intimately concerned with the facts is in a position to recognize the half-truths. It is sincerely hoped that my necessarily brief presentation will not only give you an adequate report on present dental caries research but will also give you a better understanding of the disease of dental caries itself.

Dentistry has come a long way in the past one hundred years. In 1840 a dentist needed no educational requirement to practice. His prime purpose was to relieve pain by extracting the offending tooth. Today the requisite for a dental degree is six years of college. The dentist now finds himself confronted with several purposes, namely: to relieve pain, to restore teeth, to eliminate infection, and to control and prevent dental disease. By dental disease I refer to periodontal disorders as well as dental caries, for diseases affecting the tissues about the teeth (periodontal diseases) are responsible for the loss of as many teeth as is dental decay.

"Control" and "prevention" are the key words in this presentation. Control of dental caries indicates only a means of reducing the rate of dental caries formation. Hence, to a certain extent we can *control* caries. But, to date, there is no way to *prevent* caries.

The control of any disease requires certain prophylactic measures. Cancer, for example, requires early diagnosis, early treatment, and periodic check-ups for its control. So it is with dental caries. Early diagnosis, early treatment, and periodic check-ups are prerequisites for the control of this disease. *There is no present panacea that any individual can utilize which will supplant those measures.*

Dental caries is not the relatively simple disease the public has been led to believe. It appears to be the almost unanimous contention that caries is a disease of the calcified tissues of the teeth caused by acids (1). These acids are produced by the action of micro-organisms on ingested carbohydrates, especially various kinds of sugars. At least that is the definition habitually used. There exists a minority school, however, who questions that definition. It believes that micro-organisms are mainly associated with the protein material in enamel. As you can see, the difference of opinion rests in the finer points of the bacteriology, histochemistry, and pathology of the disease process.

TOOTH STRUCTURE

The public must become aware of the fact that the enamel of the tooth is not completely inorganic in structure. Quite the contrary, it consists of a latticework of organic fibers in which the mineral salts are laid down (2). Furthermore, the cells which are concerned with enamel formation degenerate and die upon completion of the tooth crown. Thus there can be no subsequent self-repair of the enamel. Based on the age of the individual, this means that at approximately fifteen years of age the crowns of all the teeth (except the third molars) are fully formed.

You, as workers in the fields of diet and nutrition, are fully aware of the importance of good nutrition in the growth and development of the human body. You are also cognizant of the other factors involved which play comparable roles. So it is in the growth and development of the teeth. Good diet and nutrition are part of the pattern necessary for the formation of sound teeth. But they can aid in building teeth only so far as the inherited dental potential permits. However, once the tooth has formed and the enamel-forming cells have degenerated, dietetically or nutritionally speaking *that tooth cannot be made better or worse insofar as its structure is concerned.* On the other hand, however, the rate at which that tooth decays

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 13, 1949.

can be hastened or lessened by the food choices of the individual.

ETIOLOGY OF DENTAL CARIES

Dental caries becomes a complex disease when its etiology and mechanism of initiation are sought. Developmental defects in the teeth, heredity, nutrition, endocrine imbalance during the early years, professional care, and personal care are but some of the many predisposing factors in the etiology of caries. One dominant exciting factor in the initiation of the disease is the dental plaque (3)—a microscopic melting pot of bacteria and food debris which stubbornly adheres to the tooth surface especially in out-of-the-way places the tooth brush fails to reach. Despite its importance, our knowledge of this plaque is far from complete. In other words, the factors concerned in the *inception* of dental caries may even be far more numerous than is presently recognized. One should be extremely critical of any work which brazenly reduces the complexity to a single equation.

CLINICAL RESEARCH

Present research in dental caries might be described as having two diverse approaches. One group of investigators (the majority group) attempts to support the acid decalcification-lactobacillus theory. Its work is mainly concerned with finding a means of reducing the lactobacillus count in the mouth and thus reducing the amount of decay. This is similar to the cause and effect type of rationalizing, i.e., since decay is reduced by reducing the lactobacillus count, therefore the lactobacillus organism must be the cause. It is important to recognize that this group deals with the advanced stage of dental caries —the cavity. And it might be further advisable to point out that the initial lesion of dental caries—that first break in the enamel—might take anywhere from six months to six years to reach the cavity stage. That is the stage at which time it becomes apparent by either the x-ray or clinical examination. In other words, the development of a cavity may be a slow process in some individuals whereas in other persons, due in part to the kind of teeth they have, it may be quite rapid.

The other group of investigators has delegated itself to determine the actual cause of dental decay. It is studying the initial or incipient stage of the disease and offers no form of treatment. Treatment, it is felt, will depend on the knowledge gained about the cause of the disease. *Both* groups are of value. Both, indirectly or directly, will probably uncover the true cause of this widespread disease and therein will arise the prevention of dental caries.

The group concerned with controlling the rate of decay by either inhibiting the acid-forming bacteria or by altering the enamel of the tooth in such a fashion as to reduce its solubility happens to be very much in the "limelight." Briefly, the contemporary researches of this group include the following:

(a) *The topical application of sodium fluoride.* This method of control requires the application of a 2 per cent solution of sodium fluoride to the *dried surfaces* of the teeth. It is done at weekly intervals for four weeks. Apparently it is most effective in children, especially when it follows the tooth-eruption periods, i.e., at the ages of three, seven, ten, and thirteen. The U. S. Public Health Service (4), Bibby (5), Jordan and collaborators (6), and the Division of Dental Medicine at the University of California College of Dentistry are investigating this method of treatment. Reports of results to date have varied so widely that this treatment cannot be considered dependable in the control of caries.

(b) *The incorporation of fluoride in the drinking water.* The U. S. Public Health Service (7–9) has incorporated fluoride in the drinking water of several communities. Since the results of such a method are dependent upon the protective effect of fluoride on the developing teeth of the children of the community, it will be several more years before these studies can be evaluated.

(c) *The incorporation of fluoride in chewing gum, mouth washes, vitamin tablets, dentrifrices, and so on.* This has not as yet proved to be effective (10).

(d) *The impregnation of dental tissues with zinc chloride and potassium ferrocyanide.* By the use of these two chemical substances attempts have been made to change the character of the organic tracts within the enamel structure so as to render them impermeable to bacterial invasion. This treatment can be used in all age groups. It is given three times a year in children, twice a year in adults. Although clinical reports have been enthusiastic, scientifically controlled tests have not been completed. Such tests, however, are now being conducted by the Texas State Dental Society and by the University of California College of Dentistry's Division of Oral Diagnosis.

(e) *The ammoniated dentifrices.* These have created one of the biggest publicity campaigns of recent time. They have been eagerly accepted by the populace, for here at last the individual has been able to treat himself. These dentifrices have been manufactured because previous research indicated that the ammonia content of saliva appeared to be associated with an immunity to dental caries. The exact manner in which the ammonia-liberating agents work is not definitely established. The belief is that they decrease the acidity of the dental plaque as well as the bacterial activity within it. Controlled studies and additional researches by Henschel (11), Kesel (12), Stephan (13), and the Division of Dental Medicine of the University of California College of Dentistry are working towards the establishment of the effectiveness of the ammoniated dentifrice in caries control.

(f) *A dentifrice containing chlorophyll.* This rela-

tively new dentifrice has recently made its debut in the fight against caries. It was originally intended to aid in the treatment of gingival inflammation; it has now been found to reduce the lactobacillus count also. Hence it, too, makes its bid for public use. Rapp at the Chicago Dental College has been concerned with this investigation.

(g) *Dietary restrictions.* Possibly the oldest of methods in the control of tooth decay is the restriction of carbohydrates, especially sugars, in the diet. It is still our most potent weapon therapeutically, yet our most difficult to enforce—and perhaps our most questionable from the standpoint of emotional development in the child (14). Lactobacillus studies show a correlation between a low lactobacillus count and a reduction of caries. Bunting and Jay of the University of Michigan and Becks of the University of California College of Dentistry (15) have been prominently associated with the clinical studies in this field.

All of these current methods of caries control of necessity combat the problem of decay in a "cart before the horse" system. When a disease of exasperating complexity exists, control methods are necessarily based on the existing knowledge of that disease. Reasonable theories form a welcome source from which treatment might be based, for medicine or dentistry cannot afford to wait years for a complete understanding of a disease before making an effort to do something therapeutically. So it is in the problem of dental caries. The recounted methods are based on the existing theoretical concepts of the disease.

FUNDAMENTAL RESEARCH

In contrast, our second group of investigators is diligently working towards the solution of the problem by attempting to get a complete understanding of the etiology and pathogenesis of the disease. The Zoller Clinic at the University of Chicago in collaboration with Notre Dame is attempting to develop bacteria-free animals and then test various oral organisms on the teeth of these animals. Atkinson and Matthews (16) at the University of Manchester in England have been making biochemical studies of the organic components of the human teeth.

The Division of Oral Pathology of the University of California College of Dentistry has been conducting an integrated project of research for the past ten years. This group started its fight against dental caries with the idea in mind that only from a thorough knowledge of *the formation of teeth and the pathology, bacteriology, and micro-biochemistry of the disease* could a sound basis for prevention and control be evolved. Its approach is thus through research of a basic or fundamental nature. The previous group, on the other hand, is approaching it mainly through clinical studies.

The California group has been concerning itself in a histological study of enamel and dentin formation and a histopathologic study of the incipient lesion of the disease (2). The nutritional requirements and metabolic products of certain of the organisms which have been associated with dental decay are being investigated (17, 18). Bacteriological studies on the variable morphology of the organisms called actinomycetes are being made (19). The group believes these organisms to be important constituents of the dental plaque which may play a vital role in decay. Its studies also include the testing of the ability of certain oral bacteria to attack *in vitro* the organic matrix of the enamel of hamsters (20). Many interesting and enlightening facts are being added to an already substantial compilation of data.

Such is a rapid view of the present status of caries research. It is hoped it has been absolute for your desires, but more important that it has cautioned you to read the "printed page" with "tongue in cheek."

As dentist to patient rather than writer to reader, allow me to say this much: if your teeth are faulty and poor, expect a somewhat similar genetic pattern in your child, but do everything nutritionally to allow the developmental potential of his teeth to be used to its utmost. Dietetically keep those soft sticky foods and those refined sugars curtailed to a minimum and limited to the mealtime dessert. Use the proper mouth hygiene with mouth brushing directly after meals, not before. Give yourself the benefit of a periodic mouth examination and cleaning by a dentist and have whatever defects that arise treated promptly. Use the ammoniated dentifrices; utilize the topical application of sodium fluoride. But then, after all this effort, expense, and care, don't be disgruntled if a few cavities develop in a year!

REFERENCES

(1) Michigan workshop on the evaluation of dental caries control technics. J. Am. Dent. A. 36: 3, 1948.

(2) Frisbie, H. E., Nuckolls, J., and Saunders, J. B. deC. M.: Distribution of the organic matrix of the enamel in the human tooth and its relation to the histopathology of caries. J. Am. Coll. Dent. 11: 243, 1944.

(3) Ennever, J., Robinson, H. B. G., and Kitchin, P. C.: Studies on the bacterial plaque and dental caries. J. Dent. Research 27: 599, 1948.

(4) Knutson, J. W.: Sodium fluoride solutions: technic for application to the teeth. J. Am. Dent. A. 36: 37, 1948.

(5) Bibby, B. G.: Use of fluorine in the prevention of dental caries. 1. Rationale and approach. J. Am. Dent. A. 31: 228, 1944.

(6) Jordan, W. A., Wood, O. B., Allison, J. A., and Irwin, V. D.: The effect of various numbers of topical applications of sodium fluoride. J. Am. Dent. A. 33: 1385, 1946.

(7) Arnold, F. A. Jr.: Fluorine in drinking water: its effect on dental caries. J. Am. Dent. A. 36: 28, 1948.

(8) Dean, H. T.: Fluorine: water-borne fluorides and den-

tal health. *In* PELTON, W. J., AND WISAN, J. M.: Dentistry in Public Health. Philadelphia: W. B. Saunders Co., 1949, Chap. 8.
(9) ARNOLD, F. A., JR.: Fluorine: systemic, oral environmental, experimental and control aspects. *In* PELTON, W. J., AND WISAN, J. M.: Dentistry in Public Health. Philadelphia: W. B. Saunders Co., 1949, Chap. 9.
(10) ARNOLD, F. A., JR.: Fluoride therapy for the control of dental caries. J. Am. Dent. A. 37: 433, 1948.
(11) HENSCHEL, C. J.: Caries control by chemical prophylaxis. New York J. D. 16: 102, 1946.
(12) KESEL, R. G., O'DONNELL, J. F., KIRCH, E. R., AND WACH, E. C.: Ammonia production in the oral cavity and the use of ammonium salts for the control of dental caries. Am. J. Orthodontics 33: 80, 1947.
(13) STEPHAN, R. M.: The effects of urea in counteracting the influence of carbohydrate on the pH of dental plaques. J. Dent. Research 22: 63, 1943.
(14) CHRISTIE, A.: Diet to reduce L. *acidophilus* content of saliva. J. Calif. State Dent. Assoc. 16: 185, 1940.
(15) BECKS, H., JENSEN, A. L., AND MILLARR, C. B.: Rampant dental caries: prevention and prognosis. J. Am. Dent. A. 31: 1189, 1944.
(16) ATKINSON, H. F., AND MATTHEWS, E.: An investigation into the organic components of the human tooth. Brit. Dent. J. 86: 167, 1949.
(17) MULLETT, P., HURST, V., AND NUCKOLLS, J.: Studies on the pH tolerance of oral bacteria. J. Dent. Research. In press.
(18) HUTTON, W. E., HURST, V., AND NUCKOLLS, J.: Comparison of the utilization of certain sugars by some oral actinomycetes and lactobacilli. In press.
(19) HURST, V.: Pleomorphism of oral actinomycetes. Thesis for M.S. degree, University of California, 1948.
(20) HURST, V., MULLETT, P., FRISBIE, H. E., NUCKOLLS, J., AND MARSHALL, M.: A progress report on the bacteriologic aspect of the caries research program. J. Dent. Research 28: 430, 1949.

New Uses Sought for Maple Products

Work recently started at the Eastern Regional Research Laboratory under a project of the Research and Marketing Act is expected to lead to improved methods of producing maple sirup, better quality, and greater uniformity of sirup, and the development of new products and uses. Efforts have been made to determine the source and identity of the maple flavor, the only ingredient of edible maple products that is of economic importance. A complete understanding of this characteristic flavor is needed before any significant changes in either methods of production or utilization can be made.

In the course of this work, an experimental maple sirup that is almost entirely free of both maple flavor and the associated color was made by low-temperature vacuum evaporation of sugar-maple sap. This sirup is now being used as the basic material in flavor studies. The production of such a sirup, together with other substantiating evidence, strongly indicated that the flavor and color of maple sirup are not pre-existent in the sap, but are developed by conventional processing after the sap leaves the tree. Investigations are now under way to identify the constituents of normal maple sap that produce the characteristic maple flavor when they are brought together under the proper conditions of temperature and heating time.—*From Report of the Chief of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture, 1949.*

Oxidation Plays Major Role in Pork Storage Deterioration

Storage studies on frozen pork conducted by the Bureau of Animal Industry indicate that deterioration at temperatures from 0° to 15°F. is primarily due to oxidation of the fat. This results in a decrease in the desirability of flavor of the lean, as well as the fat, and a corresponding loss of desirability of aroma and quality of juice. Vacuum-packed samples stored at 15°F. remained nearly equal in quality to those stored at 0° during the forty-eight-week storage period, whereas the cellophane-wrapped and unprotected samples stored at 15°F. were inferior to similarly protected samples and lard-dipped samples stored at 0°.

Although there was only a slight loss of quality by the vacuum-packed samples for the duration of the experiment, unprotected samples stored at 15°F. were judged undesirable in flavor of fat at twelve weeks, and when stored at 0° were undesirable at twenty-four weeks, while the cellophane-wrapped and lard-dipped samples stored at 0° were slightly desirable at forty-eight weeks. Cellophane wrapping and lard dipping, therefore, appeared to furnish about equal protection against fat oxidation. The striking similarity in quality of vacuum-packed meats stored at both 15° and 0°F. indicated the major role played by oxidation when the pork was unprotected or protected less efficiently.—*From Report of the Chief of the Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture, 1949.*

Terminal Heating of Infant Formula

IV. Retention of Ascorbic Acid in Orange Juice[1]

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HOSPITALS which use the terminal heating methods (1, 2) of preparing infant formulas do not sterilize empty bottles for formula and hence do not have sterile bottles for orange juice preparation and feeding. For this reason there is the question of a suitable method of supplying orange juice to infants when the formula is prepared by terminal heating.

Bottles may be partially filled with water and heated by either the low-pressure or high-pressure methods at the same time the formula is heated. The water may then be emptied from the bottle and replaced with orange juice. Unless a good aseptic technique is followed, however, there is some possibility that the orange juice or the bottle may be contaminated with pathogenic micro-organisms during the preparation of the juice or filling of the bottle. If dry, empty bottles are heated, one must make sure that steam penetrates to the interior of the bottle.

In an earlier paper (3), it has been shown that ascorbic acid is well retained during the terminal heating of infant formula, and a convenient method of adding ascorbic acid as a lactose-vitamin mixture was described. The lactose-vitamin mixture can conveniently be measured with a teaspoon and is readily soluble in water. In formula preparation, the most satisfactory procedure is to dissolve the carbohydrate and lactose-vitamin mixture in the water and then to add the milk. This procedure prevents the formation of small particles of coagulated milk by the ascorbic acid. Ascorbic acid tablets are also a convenient method of fortifying infant formula, but often they do not dissolve as readily as the lactose-vitamin mixture.

Many dietitians and pediatricians prefer to recommend the use of orange juice rather than the vitamin itself as a source of ascorbic acid, and it seems desirable to extend the advantages of the terminal heating methods to orange juice in order to make all the food of the young infant as safe as possible. For this reason we have investigated losses of ascorbic acid during the terminal heating and refrigerator storage of orange juice.

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EXPERIMENTAL METHODS

The terminal heating methods of Smith *et al.* (1) and Finley, Smith, and Louder (2) were followed. The specific conditions of pre-heating and cooling which have been outlined (3) were also used.

Five different lots of oranges were purchased at local stores, and all but one proved to be rich sources of ascorbic acid.

Analytical Methods

The 2,6-dichlorobenzenoneindophenol titration method for determining ascorbic acid was used. Total ascorbic acid was determined after hydrogen sulphide treatment. However, very little dehydroascorbic acid was present in either the fresh or heated samples, and the results for reduced ascorbic acid and for total ascorbic acid were almost identical. A description of the ascorbic acid method which was followed and references to the original investigations upon which it is based have been given (3).

RESULTS

The results of the studies of ascorbic acid are summarized in Table 1. The average retention of total ascorbic acid (ascorbic acid plus dehydroascorbic acid) during terminal heating was 96 per cent by the low-pressure method and 94 per cent by the high-pressure method. The results for reduced ascorbic acid were similar; a retention of 97 per cent was shown during low-pressure terminal heating and 95 per cent during high-pressure terminal heating.

Samples which had been terminally heated were tasted by a group of ten persons. In a blind test all selected the fresh juice as being the more palatable. A few objected to the flavor of the heated juice. Others stated it was as good or better than canned orange juice. There was some variation between different lots of orange juice. Some heated juice had a definite off-flavor, while other heated juice had a changed but pleasant flavor. It seems probable that infants would find the heated juice acceptable, especially if they were not already accustomed to the fresh juice.

If orange juice is prepared at the same time as

TABLE 1

Retention of total ascorbic acid in orange juice during terminal heating

SAMPLE	ASCORBIC ACID				
	Control series	Low-pressure series		High-pressure series	
		Amount	Retention	Amount	Retention
	mg./liter	*mg./liter*	%	*mg./liter*	%
1	533	515	97	505	95
2	474	456	96	435	92
3	517	503	97	498	96
4	514	492	96	488	95
5	547	535	98	519	95
6	555	546	98	535	96
7	604	587	97	555	92
8	563	542	96	532	94
9	548	532	97	512	93
10	542	518	96	494	91
11	314	300	96	293	93
12	216	214	99	205	95
13	307	292	95	289	94
14	282	261	93	252	89
15	282	269	95	262	93
16	276	270	98	265	96
17	245	233	95	225	92
18	329	319	97	321	98
19	635	612	96	608	96
20	578	567	98	554	96
21	615	586	95	584	95
22	570	543	95	528	93
23	583	555	95	549	94
24	572	555	97	537	94
25	509	490	96	477	94
Average			96		94

the formula, it probably would not be fed immediately but would be stored in the refrigerator for later use. Probably this storage period would not be longer than 4 to 6 hr., and there would certainly be no reason for storing the juice longer than 24 hr. The 24-hr. period was, therefore, selected for storage studies. The average retentions during heating and 24-hr. storage are reported in Table 2. The average retention for the low-pressure series was 92 per cent and for the high-pressure series, 89 per cent. The storage loss alone was thus about 4 per cent for the low-pressure series and 5 per cent for the high-pressure series. The fresh juice kept slightly better, showing an average loss of only 1 per cent.

TABLE 2

Retention of total ascorbic acid in orange juice during terminal heating and 24-hr. storage in a refrigerator

SAMPLE	ASCORBIC ACID RETENTION		
	In control series during storage only	In low-pressure series during heating and storage	In high-pressure series during heating and storage
	%	%	%
13	97	93	92
14	94	87	83
15	101	90	85
16	100	89	87
17	98	92	85
18	98	93	92
19	100	94	92
20	101	93	90
21	102	94	92
22	99	92	90
23	97	92	90
24	94	93	93
Average	99	92	89

SUMMARY

Orange juice which received the prescribed low-pressure terminal heating (1) showed an average retention of ascorbic acid of 96 per cent. Similar samples that received the prescribed high-pressure terminal heating (2) showed an average retention of ascorbic acid of 94 per cent. The average retentions following heating by the low-pressure method and by the high-pressure method and by 24-hr. storage in the refrigerator were 92 per cent and 89 per cent, respectively. Although the orange juice lost its distinctively pleasant flavor during heating, it would probably be acceptable as food by infants.

REFERENCES

(1) SMITH, F. R., FINLEY, R. D., WRIGHT, H. J., AND LOUDER, E. A.: Terminal heating of infant formula. 1. Bacteriological investigation of low-pressure technique. J. Am. Dietet. A. 24: 755, 1948.

(2) FINLEY, R. D., SMITH, F. R., AND LOUDER, E. A.: Terminal heating of infant formula. 2. Bacteriological investigation of high-pressure technique. J. Am. Dietet. A. 24: 760, 1948.

(3) HODSON, A. Z.: Terminal heating of infant formula. 3. Retention of heat-labile nutrients. J. Am. Dietet. A. 25: 119, 1949.

Citric Acid Improves Soybean Oil

Chemists have worked out a process which uses citric acid to improve the flavor and keeping quality of soybean oil used in salad dressings, shortening, and other foods. Previously, soybean oil has persisted in developing a painty, fishy, or grassy flavor. The use of citric acid, not more than 3 or 4 oz. to a ton of oil, helps decrease the rate of oxidation and thus retards the development of these off-flavors. Oil refined by this process keeps three to five times longer than soybean oil refined by previous methods.—*From Report of Activities under the Research and Marketing Act, 1949, issued by the U. S. Department of Agriculture.*

Reduced Ascorbic Acid in Goat's Milk[1]

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DURING recent years constantly increasing attention has been given to the value of goat's milk as a human food. In his investigation of goat's milk, Besley (1) found the milk was exceptionally low in bacteria, 1300 colonies per cubic centimeter after bottling, and like other milks it was low in iron and copper but contained satisfactory amounts of calcium and phosphorus. Haller and Babcock (2) reported that pasteurization slightly decreased the solubility of the calcium and phosphorus in goat's milk and that the short-time, high-temperature method apparently did not affect the reduced ascorbic acid, but that goat's milk pasteurized by the holding method lost from 33 to 45 per cent of its reduced ascorbic acid. Richards (3) believes that goat's milk has an alkaline reaction which is especially important to persons affected with various alimentary disturbances, but there is considerable evidence to the contrary. Trout (4) concluded that goat's milk is acid in reaction. This observation has been substantiated by Schultz and Chandler (5), Gamble, Ellis, and Besley (6), Holmes *et al.* (7), and others.

During recent years, Williams, Cheldelin, and Mitchell (8); Hunt and Winter (9); Turner and Garrison (10); Gamble, Ellis, and Besley (6); Holmes *et al.* (7); Richmond, Grinnells, and Satterfield (11); Besley (1); and others have determined the vitamin A, reduced ascorbic acid, thiamine, riboflavin, pantothenic acid, vitamin D, niacin, and vitamin E content of goat's milk. Holmes *et al.* (7) reported the results of reduced ascorbic acid assays of eighteen samples of commercial winter goat's milk. The values ranged from 0.2 to 14.7 mg. per liter with an average of 6.5 mg. per liter. Later, Holmes, Lindquist, and Greenwood (12) assayed thirty-nine samples of commercial goat's milk in the early spring when the goats were subsisting on some pasture with commercial feed supplements. In this instance the reduced ascorbic acid content varied from 0.5 to 31.5 mg. per liter with an average of 16.8 mg. Since the amount of reduced ascorbic acid varied so widely for samples of goat's milk obtained from various sources at different seasons of the year, it was decided to determine the reduced ascorbic acid content of samples of commercial goat's milk produced in a limited geographic area.

EXPERIMENTAL PROCEDURE

Sixteen samples of milk were obtained in early September from goat dairies in the vicinity of Worcester, Massachussetts. Six samples were produced by individual animals, and the other samples were taken from pooled milk from two to nine animals. Most of the animals were Toggenburgs, but there were a few Nubians and Saanens and one French Alpine. The ages of the goats varied from 1.5 to 10 years, with most of them averaging about 6 years old. The stage of lactation ranged from one to twenty-four months, but the majority of the goats had been producing milk about six months. Eight of the fifty-two goats were in their first lactation period. Thirteen of the sixteen samples came from animals that were on pasture. Four samples, No. *3*, *4*, *7*, and *8*, were produced by stall-fed animals. Nearly all of the goats received 2 lb. commercial concentrates per day, some of which contained as much as 18 or 20 per cent protein.

No pasteurized milk was included in this study. All the samples of raw goat's milk were cooled promptly and packed in ice. Care was taken to protect the samples of milk from exposure to light between the time they were obtained from the goat and their arrival at the laboratory. Hence, these samples were considered as being typical of goat's milk sold in the area.

The bacterial count was made by the standard plate method with incubation at 37°C. as described by the American Public Health Association (13). The fat was determined by the Babcock method (14). All the samples of goat's milk were assayed for reduced ascorbic acid within 3 hr. after their arrival at the laboratory. Sharp's (15) method, slightly modified, was used.

[1] Contribution No. 691, Massachusetts Agricultural Experiment Station. Received for publication May 27, 1949.

RESULTS AND DISCUSSION

Information regarding the breed of goats and the number of goats milked to produce the sample and the results of the assays for bacteria, fat, and ascorbic acid is reported in Table 1.

The bacterial count per milliliter of goat's milk varied from 120 to 468,000. No information was available to account for the unusually high count on sample No. *11*. Sample No. *16* also contained more bacteria than normally are found in goat's milk. Excluding these two samples, the average count in the other fourteen samples was 2400 per milliliter. These counts are significantly higher than 1300 per milliliter reported by Holmes *et al.* (7) for eighteen winter samples of commercial goat's milk or Besley's (1) average daily plate count for a twenty-seven-week period of slightly over 1300 colonies per milliliter. However, it is much lower than the 64,000 bacteria per milliliter that Haller and Babcock (2) found in raw goat's milk. The counts of 9700, 5400, 5200, and 3000 bacteria per milliliter found for samples No. *3*, *15*, *12*, and *1*, respectively, were decidedly higher than the bacterial counts for samples No. *2*, *4*, *5*, *6*, *7*, *8*, *9*, *10*, *13*, and *14*, which varied from 120 to 1940 bacteria per milliliter. However, the number of bacteria per milliliter in a series of samples of raw milk from any species of animals is likely to be quite variable.

The fat content of the milk ranged from 2.0 per cent for samples No. *4* to 5.5 per cent for sample No. *13*. With the exception of these extremes, the fat content was fairly uniform. The mean amount of fat in the sixteen samples of raw milk was 3.4 per cent, a value somewhat lower than 4.3 per cent found by Holmes, Lindquist, and Greenwood (12) for thirty-nine samples of goat's milk produced in the late spring and assayed by the methods used in this study. However, it was in agreement with the value, 3.5 per cent, reported by both Besley (1) and Gamble, Ellis, and Besley (6) and 3.91 per cent reported by Trout (4). It was lower than 4.76 per cent reported by Ormiston and Gaines (16), the 3.98 per cent which Lythgoe (17) found for September milk, or the average of 4.80 per cent for the eighteen samples assayed by Peterson and Turner (18).

TABLE 1

Reduced ascorbic acid content of raw goat's milk

SAMPLE NO.	BREED OF GOAT	NUMBER OF GOATS MILKED	BACTERIA PER MILLILITER	FAT	REDUCED ASCORBIC ACID
				%	*mg./liter*
1	Toggenburg	2	3,000	2.9	21.6
2	Saanen Nubian	4	1,350	4.1	10.3
3	Toggenburg	1	9,700	2.8	13.3
4	Toggenburg	1	1,940	2.0	21.2
5	Saanen	1	1,260	3.4	9.4
6	Toggenburg	1	370	3.0	24.6
7	Toggenburg Nubian	4	1,600	3.2	18.2
8	Toggenburg	2	630	2.9	12.8
9	Toggenburg	6	850	3.8	18.7
10	Saanen	9	120	3.1	19.2
11	Toggenburg	4	468,000	3.2	18.2
12	Toggenburg	6	5,200	3.4	12.8
13	French Alpine	1	700	5.5	32.5
14	Toggenburg	1	710	3.2	13.8
15	Toggenburg	2	5,400	3.5	16.7
16	Saanen Toggenburg	7	11,400	3.9	19.2
Average				3.4	17.7

The amount of reduced ascorbic acid present in the samples of raw milk varied from 9.4 to 32.5 mg. per liter with a mean of 17.7 mg. It may be noted that the milk which assayed the highest, i.e., 32.5 mg. reduced ascorbic acid per liter, also contained the largest amount of fat, 5.5 per cent. However, these values do not permit breed comparisons of the quality of goat's milk, for sample No. *13* was produced by the only French Alpine goat in the group from which the samples of milk under consideration were obtained. The mean value of 17.7 mg. reduced ascorbic acid per liter for late summer raw goat's milk was in good agreement with that of 16.8 mg. per liter obtained by Holmes, Lindquist, and Greenwood (12) for very early spring raw milk produced by goats that were stall-fed, but which also received appreciable amounts of green herbage of various types. Also, it was of the same order as the observation of Richmond, Grinnells, and Satterfield (11) that 430 samples of goat's milk contained from 5 to 20 mg. reduced ascorbic acid per liter. The value was somewhat lower than 20 mg. obtained by Turner and Garrison (10) as an average value for the milk of twenty-five goats, but it was higher than 13 mg. per liter reported by Gamble, Ellis, and Besley (6) as an average for milk obtained from twenty to twenty-five goats during a twelve-month period.

The reduced ascorbic acid content of goat's milk, 17.7 mg. per liter, found in this study of late summer raw commercial milk was similar to that reported for cow's milk by a number of investigators. Turner and Garrison (10) reported 17.0 mg. per liter in the mixed milk from the University of Missouri herd. Holmes *et al.* (19) found 16.4 mg. per liter of raw cow's milk. During a period of thirty months, Guthrie (20) assayed 250 samples of fresh milk and found 17.19 mg. reduced ascorbic acid per liter. In a study of ascorbic acid in fresh, pasteurized, evaporated, and whole milk powders, Stewart and Sharp (21) analyzed 1050 samples of fresh milk which averaged 17.1 mg. reduced ascorbic acid per liter.

SUMMARY

Sixteen samples of commercial goat's milk were examined for bacteria, fat, and reduced ascorbic acid.

The number of bacteria per milliliter was quite variable. The mean fat content was 3.4 per cent and the average reduced ascorbic acid was 17.7 mg. per liter.

REFERENCES

(1) Besley, A. K.: Recent investigations of goat's milk. Am. J. Pub. Health 30: 182, 1940.

(2) Haller, H. S., Babcock, C. J., and Ellis, N. R.: The effect of pasteurization on some constituents and properties of goat's milk. U.S.D.A. Tec. Bull. 800, 1941, p. 14.

(3) Richards, I.: Modern Milk Goats. Philadelphia: J. B. Lippincott Co., 1921.

(4) Trout, G. M.: The composition and properties of goat's milk. Mich. Agric. Exper. Sta. Quart. Bull. 23: 254, 1941.

(5) Schultz, E. W., and Chandler, L. R.: The acidity of goat's milk in terms of hydrogen ion concentration with comparisons to that of cow's and human milk. J. Biol. Chem. 46: 129, 1921.

(6) Gamble, J. A., Ellis, N. R., and Besley, A. K.: Composition and properties of goat's milk as compared with cow's milk. U.S.D.A. Tech. Bull. 671, 1939, p. 72.

(7) Holmes, A. D., Lindquist, H. G., Jones, C. P., Wertz, W., Esselen, K., McKey, B. V., and Fuller, E.: The vitamin content of commercial winter goat's milk. New Eng. J. Med. 232: 72, 1945.

(8) Williams, R. G., Cheldelin, V. H., and Mitchell, H. K.: B vitamin content of milk from animals of different species. Univ. Texas Pub. No. 4327, 1942, p. 97.

(9) Hunt, C. H., and Winter, A. R.: Cows' milk versus goat's milk as a source of antiscorbutic vitamin. Science 56: 114, 1922.

(10) Turner, C. W., and Garrison, E. R.: The vitamin C content and curd tension of goat's milk. Mo. Agric. Exper. Sta. Bull. 413, 1940, p. 40.

(11) Richmond, M. S., Grinnells, C. D., and Satterfield, G. H.: Ascorbic acid in goat's milk, blood and tissues. N. C. Agric. Exper. Sta. Tech. Bull. 68, 1942, p. 39.

(12) Holmes, A. D., Lindquist, H. G., and Greenwood, E. K.: Variation in fat, ascorbic acid, and riboflavin content of goat's milk. J. Dairy Sci. 28: 853, 1945.

(13) Standard Methods for Examination of Dairy Products. 8th ed. Washington: Am. Public Health Assn., 1941.

(14) Babcock method—laws and regulations pertaining to the methods and frequency of making certain tests of milk and cream. Mass. Dept. Agric. Bull. 136, Jan., 1941.

(15) Sharp, P. F.: Rapid method for the quantitative determination of reduced ascorbic acid in milk. J. Dairy Sci. 21: 85, 1938.

(16) Ormiston, E. E., and Gaines, W. L.: Live weight and milk-energy yield in British goats. J. Dairy Sci. 27: 243, 1944.

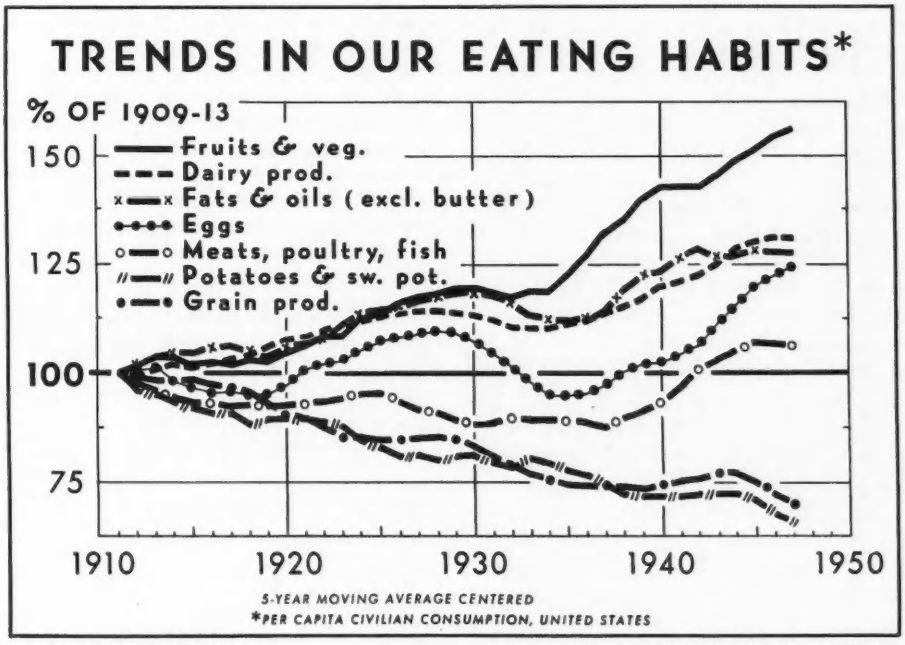
(17) Lythgoe, H. C.: Composition of goat milk of known purity. J. Dairy Sci. 23: 1097, 1940.

(18) Peterson, V. E., and Turner, C. W.: The energy content of goat milk. J. Nutrition 17: 293, 1939.

(19) Holmes, A. D., Lindquist, H. G., Jones, C. P., and Wertz, A. W.: Effect of high-temperature-short-time pasteurization on the ascorbic acid, riboflavin and thiamine content of milk. J. Dairy Sci. 28: 29, 1945.

(20) Guthrie, E. S.: The results of deaeration on the oxygen, vitamin C and the oxidized flavors of milk. J. Dairy Sci. 29: 359, 1946.

(21) Stewart, A. P., Jr., and Sharp, P. F.: Vitamin C content of market milk, evaporated milk, and powdered whole milk. J. Nutrition 31: 161, 1946.



A Standardized Method for French Frying Potatoes[1]

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IN AN investigation of the effect of seventeen cooking methods on the vitamin retention in potatoes (1), a standard quantitative method of preparing a family portion (six servings) of French fried potatoes for chemical analysis was needed. Since a survey of scientific reports (2–4), industrial practices (5), and recipes in well-known cookbooks failed to reveal a method that would meet the requirements, one was developed in the Bureau's laboratories. In this report the details of the procedure and representative data obtained are given.

Purpose and Plan of Experiments

The purpose of this study was to determine what pre-treatment and cooking procedure or combination of procedures would produce six servings of French fries having the following characteristics: *color*—even, light golden to golden brown; *texture* of exterior of potato pieces—crisp and tender; *texture* of interior of pieces—mealy, flaky, "popped"; *flavor*—excellent (free from burnt or other off flavors); *degree of oiliness*—slight to moderate; general *edible quality* or *acceptability*—very good to excellent. Furthermore, it was proposed to simplify the procedure insofar as consistent with the production of French fried potatoes of the quality prescribed.

The experimental work was planned in two parts: (a) preliminary or exploratory tests, in which the methods in general home use were investigated on a quantitative basis, and (b) improvement and standardization of the most promising procedures as determined in (a).

According to directions published in well-known cookbooks, there are two general home methods for French frying potatoes, which may or may not include pre-treatment. Methods of pre-treatment in home use vary. The raw cut potatoes are soaked in cold water for different lengths of time—30 min. to 1 hr. or more. In addition, some of the methods call for parboiling or "water blanching" the soaked potatoes for a few minutes, followed with a cold water dip. In this paper we are classifying the frying procedures as "one-step" and "two-step." In one-step frying, potatoes are placed in fat only once and fried to completion (a) in parts or aliquots of the required quantity or (b) the total quantity is fried at one time. Two-step frying consists of Step 1: partial cooking ("parfrying" or "fat blanching") of small quantities of potatoes, and Step 2: completion of cooking of combined "parfries."

Experimental Procedure

Potatoes were purchased in Washington, D. C. markets from July to November, 1945, inclusive. Except for Green Mountain potatoes, they were not identified as to variety. No information was available as to source or storage condition.

When received at the laboratory, the potatoes were washed and wiped dry with cheesecloth. Several lots were identified as to mealiness by Smith's salt density method (6). The potatoes were held for varying lengths of time, one to fourteen days, at 21°C. (70° F.) in a dark room equipped with fans to circulate the air.

Approximately 750 gm. unpared potatoes were used to provide six servings of French fried potatoes. The potatoes were pared thinly and cut by a hand

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machine into strips in three different sizes of cross section, respectively, $\frac{1}{4}$ by $\frac{1}{4}$, $\frac{3}{8}$ by $\frac{3}{8}$, or $\frac{1}{2}$ by $\frac{1}{2}$ in.

The gas flow of table model stoves (1) was adjusted by hand to the rate of 0.26 cu. ft. per minute. The B.T.U. content of the manufactured gas used was approximately 600 per cubic foot.

Peanut oil was the frying medium used (4, 7). In the preliminary studies, an average of 4 lb. oil, or approximately 2.6 times the weight of the raw, pared potatoes required for six servings, was weighed into a 4-qt. frying kettle. For the later studies, the quantity of oil was increased to three times the weight of the raw, pared potatoes needed for six servings. The gas meter was read and the time recorded when the fat was placed over the flame and again when it reached the required, or "initial" temperature.

Whatever method was selected for study, the general procedures for frying were as follows: When ready to fry, the potatoes were placed in a frying basket and lowered carefully into the hot fat. During cooking, the potatoes were stirred lightly with a fork. The temperature of the fat was recorded at frequent intervals, with special effort to obtain the lowest temperature. Strips of potato were removed from time to time in order to observe the degree of "doneness" in relation to the temperature of the fat. Upon completion of each frying operation, the "final" temperature of the fat, the time, and the reading of the gas meter were recorded. Upon removal from the fryer, the potatoes were drained on absorbent paper, weighed, and judged for edible quality.

PRELIMINARY STUDIES

One-Step French Frying of Six Servings in Aliquots

Strips Cut $\frac{1}{4}$ by $\frac{1}{4}$ in. Strips were soaked for 15 min. at room temperature in water to cover, then drained and dried between layers of cheesecloth. For certain tests the strips were divided into two aliquots, weighing approximately 340 gm. each, and for other tests into three aliquots of about 230 gm. Each aliquot was placed in fat pre-heated to an initial temperature of 200°C. (392°F.), and allowed to cook until the temperature of the fat had dropped to its lowest point and subsequently risen to 190°C. (374°F.), the end point of cooking.

Strips Cut $\frac{1}{2}$ by $\frac{1}{2}$ in. The potatoes were pre-treated as described for the $\frac{1}{4}$ by $\frac{1}{4}$ in. cut, then fried in two aliquots of about 340 gm. each. Initial temperatures of the fat were 200°, 190°, and 195°C. (392°, 374°, and 383°F.). Fat temperature of 190°C. (374°F.) was taken as the end point of cooking.

Strips Cut $\frac{3}{8}$ by $\frac{3}{8}$ in. Three aliquots of about 230 gm. each were fried without pre-treatment. The initial temperature of the fat was 200°C. (392°F.). The end point of cooking was varied from 180° to 195°C. (356° to 383°F.). In addition, with Green Mountain non-mealy potatoes, the method of Wright and associates (2) was used as published: 150 gm. pared potatoes, without pre-treatment, were fried for 3 min. 50 seconds in fat previously heated to 211°C. (412°F.). In the present study, 150 gm. pared potatoes were between one-fourth and one-fifth the quantity required for six servings. The kind and quantity of fat and the rate of heating were those described above.

One-Step French Frying of Six Servings in One Lot

Strips Cut $\frac{3}{8}$ by $\frac{3}{8}$ in. Non-mealy potatoes of unknown variety were pre-treated by soaking for 15 min. at room temperature in water to cover. The entire quantity (approximately 680 gm.) was fried at one time. The initial temperature of the fat was 200°C. (392°F.), and the final temperature, was 170°C. (338°F.).

A second batch of non-mealy potatoes was soaked in water to cover at room temperature for approximately 3 hr., then placed in a frying basket and immersed in boiling water for 3 min., next plunged into cold water, drained, and dried with cheesecloth. The entire quantity for six servings was fried at one time. The initial fat temperature was 200°C. (392°F.), and the final one was 170°C. (338°F.).

Two-Step French Frying of Six Servings

Strips Cut $\frac{3}{8}$ by $\frac{3}{8}$ in. Several procedures of pre-treatment were tried: (a) soaking in water to cover at room temperature for 1 hr. followed by a 3-min. parboiling and a cold water dip; (b) soaking in water to cover at room temperature for 15 min. followed by parboiling for 3 min. and a cold water dip; (c) soaking in water to cover at room temperature for 15 min.

After pre-treatment, potatoes were divided into four portions; each was "parfried" (Step 1) and drained on absorbent paper. Step 2 consisted of combining the parfries and completing the cooking. The initial temperatures of the fat were 190° and 200°C. (374° and 392°F.), respectively for the two steps. The fat temperature at the end of cooking varied from 177° to 185°C. (351° to 365°F.) for the parfrying and from 175° to 190°C. (347° to 374°F.) for the final frying.

STANDARDIZATION OF TWO-STEP FRENCH FRYING OF SIX SERVINGS

Approximately 750 gm. potatoes (Green Mountain, non-mealy, and slightly-to-medium mealy) were pared thinly, weighed, cut into strips $\frac{3}{8}$ by $\frac{3}{8}$ in. in cross section, soaked for 15 min. in an equal weight of water at room temperature, drained, dried with cheesecloth, and divided into four equal portions by weight for parfrying.

The initial temperatures of the fat for the parfrying (Step 1) were 190°, 195°, and 200°C. (374°, 383°, and 392°F.). Shorter parfrying times were used, on the average, than in the preliminary studies. The

fat was heated to 210°C. (410°F.) for Step 2; the final temperature of the fat ranged from 175° to 182°C. (347° to 360°F.).

JUDGING EDIBLE QUALITY OF COOKED POTATOES

As a general guide, the descriptive terms for French fried potatoes employed by Wright and his associates (2) were used in judging the color, texture of exterior and interior of potato strips, flavor, degree of oiliness, and general edible quality or acceptability of the hot cooked product. A summary representing the consensus of the judges (usually four) was prepared for each lot of cooked potatoes.

CALCULATIONS

Cooking Time

The time was calculated in two ways to determine: (a) the length of heat treatment of the potatoes in the fat; and (b) the working time required to fry six servings, exclusive of time for paring, cutting, and pre-treating potatoes, and pre-heating fat. To calculate the time of heat treatment for one-step methods, the starting time was subtracted from the finishing time of frying a single portion of potatoes; for two-step methods, the difference between starting and finishing times required to parfry one of the four portions of potatoes (Step 1) was added to the difference between starting and finishing times for cooking the combined parfried portions (Step 2). To calculate the working time, as defined, the time when the frying was started was subtracted from the time when the frying was completed.

Fuel Consumption

The number of cubic feet of gas required was determined for each method by subtracting the initial from the final reading on a gas meter. The number of cubic feet required for parboiling was added to that required for pre-heating the fat and for frying the potatoes. This sum was divided by the weight in grams of raw pared potatoes and the quotient multiplied by 100.

Yield

The yield of French fried potatoes was calculated as per cent of the weight of raw, pared potatoes, before pre-treatment.

Results and Discussion

Data obtained in preliminary studies of one-step French frying of six servings of potatoes in two, three, or four to five aliquots, are presented in Table 1, Experiments 1 to 7.

The results showed that French fried potatoes prepared from potatoes cut in strips $\frac{1}{4}$ by $\frac{1}{4}$ in. in cross section were of good edible quality. The procedures found successful with this size of strip (Experiment 1) failed to produce a good product with strips $\frac{1}{2}$ by $\frac{1}{2}$ in. in cross section (Experiment 3). For the

TABLE 1

Frying conditions for one-step methods, yield, and edible quality of French fried potatoes (six servings cooked in aliquots or in one lot)

EXPERIMENT NUMBER	DIMENSIONS OF CROSS SECTION OF POTATO STRIP	ALIQUOTS	AVERAGE WEIGHT OF RAW, PARED POTATOES	AVERAGE FAT: POTATO RATIO*	AVERAGE TEMPERATURE OF FAT			AVERAGE TIME IN FAT	AVERAGE YIELD FRIED POTATOES	EDIBLE QUALITY
					Initial	Lowest	Final			
Potatoes Cooked in Aliquots										
	in.	*number*	*gm./aliquot*	*per aliquot*	°C.	°C.	°C.	*min./aliquot*	%	
1†	$\frac{1}{4} \times \frac{1}{4}$	2	340	5.3:1	200	141	190	13.0	28.6	Well browned, crisp; good
2†	$\frac{1}{4} \times \frac{1}{4}$	3	227	8.0:1	200	158	190	8.3	34.1	Well browned, crisp; good
3†	$\frac{1}{2} \times \frac{1}{2}$	2	331	5.5:1	200	156	190	11.3	45.9	Flabby, soggy, oily; poor
4†	$\frac{1}{2} \times \frac{1}{2}$	2	333	5.3:1	190	154	190	10.5	47.9	Flabby, soggy, oily (inferior to samples fried at 200°C. initial temperature)
5†	$\frac{1}{2} \times \frac{1}{2}$	2	333	5.3:1	195	158	190	10.3	48.2	
6	$\frac{3}{8} \times \frac{3}{8}$	3	226	8.0:1	173	200	190	7.0	48.5	Fair
7	$\frac{3}{8} \times \frac{3}{8}$	4 to 5	150	12.0:1	193	211	200	3.8	57.3	Flabby, wet, soggy, oily; poor
Potatoes Cooked in One Lot										
			gm./lot	*per lot*				*min./lot*		
8†	$\frac{3}{8} \times \frac{3}{8}$	—	676	2.7:1	200	116	170	22.1	32.9	Limp, leathery, blistered exterior; interior good; flavor good
9‡	$\frac{3}{8} \times \frac{3}{8}$	—	671	2.6:1	200	117	170	21.8	33.8	Tough, blistered exterior; interior mealy, good; flavor too bland

* By weight.

† Potatoes pre-treated by soaking in water 15 min.

‡ Potatoes pre-treated by soaking in water 171 min., parboiling 3 min., and cold dipping.

latter, reducing the initial temperature of the fat from 200°C. (392°F.) to 190° or 195°C. (374° or 383°F.) (Experiments 4 and 5), produced even poorer French fried potatoes. With $\frac{3}{8}$ by $\frac{3}{8}$ in. strips, procedures which produced good French fried potatoes from the $\frac{1}{4}$ by $\frac{1}{4}$ in. strips (Experiment 2) were not successful (Experiment 6). Of the three final temperatures of fat tried with the $\frac{3}{8}$ by $\frac{3}{8}$ in. strips, 190°C.

TABLE 2

Frying conditions for two-step methods, yield, and texture of French fried potatoes made from strips $\frac{3}{8}$ by $\frac{3}{8}$ in. in cross section

EXPERIMENT NUMBER	STEP NUMBER	AVERAGE WEIGHT POTATOES READY TO FRY*	AVERAGE FAT: POTATO RATIO PER ALIQUOT†	AVERAGE TEMPERATURE OF FAT			AVERAGE TIME IN FAT	VOLUME GAS USED	AVERAGE YIELD FRIED POTATOES	TEXTURE	
				Initial	Lowest	Final				Exterior	Interior
Pre-Treatment: Soaked 60 Min., Parboiled 3 Min., Then Cold Dipped											
		gm.		*°C.*	*°C.*	*°C.*	*min.*	*cu. ft./100 gm. raw, pared potatoes*	%		
10	1 (parfrying)	156	11.6:1	190	170	185	3.8	2.76	56.1		
	2 (final frying)	354	—	200	—	190	8.2		31.9	Slightly crisp	Dry, mealy, good
11	1 (parfrying)	184	11.3:1	190	170	180	4.1	2.44	—		
	2 (final frying)	—	—	200	170	175	5.8		37.4	Limp, tough	Soggy, wet
Pre-Treatment: Soaked 15 Min., Parboiled 3 Min., Then Cold Dipped											
12	1 (parfrying)	164	10.9:1	190	171	184	4.9	3.20	50.5		
	2 (final frying)	330	—	200	—	190	8.5		30.1	Limp, tough	Dry, mealy, good
Pre-Treatment: Soaked 15 Min.											
13	1 (parfrying)	165	11.6:1	190	172	177	2.7	1.70	—		
	2 (final frying)	—	—	200	169	185	9.6			Limp	Wet, soggy
14	1 (parfrying)	169	12.0:1	190	174	180	3.0	1.61	—		
	2 (final frying)	—	—	210	177	182	5.9		39.5	Medium crisp and crisp	Mealy, flaky
15	1 (parfrying)	167	11.8:1	190	172	173	2.0	1.68	—		
	2 (final frying)	—	—	210	167	175	7.3		39.6	Crisp	Mealy, flaky, moist
16	1 (parfrying)	166	12.0:1	200	178	181	1.8	1.64	—		
	2 (final frying)	—	—	210	169	180	8.2		38.0	Crisp, tender	Mealy, flaky, dry
17	1 (parfrying)	170	11.8:1	195	176	177	2.0	1.48	—		
	2 (final frying)	—	—	210	167	176	7.5		41.3	Crisp	Mealy, flaky, moist
18	1 (parfrying)	181	11.7:1	195	175	176	2.0	1.69	—		
	2 (final frying)	—	—	210	168	180	9.7		36.7	Crisp, tender	Mealy,flaky, "popped"
19	1 (parfrying)	173‡	12.1:1	195	174	177	2.0	1.54	—	Crisp	Mealy, flaky, dry
	2 (final frying)	—	—	210	169	176	7.6		39.7		

* Weight of raw, pared potatoes (six servings) before pre-treating ranged from 631 gm. to 706 gm. and averaged 667 gm.
† By weight.
‡ Slightly-to-medium mealy potatoes.

(374°F.) was preferred to 180° and 195°C. (356° and 383°F.). For this size of strip, increasing the number of aliquots to four or five and the initial temperature of the fat to 211°C. (412°F.) produced a poor product (Experiment 7), demonstrating the effect of too rapid cooking.

As a whole, it appeared that the frying method should be adapted to the size of the cross section of the potato strip. Regardless of the cut of the potatoes and the quality of the cooked product, a common disadvantage associated with one-step frying of six servings in two, three, or four to five aliquots was the cooling of one or more of the cooked portions while another was being cooked.

Results of one-step frying of six servings of potatoes in one lot (Table 1, Experiments 8 and 9) showed that the fried potato strips did not have a crisp exterior, but their interior texture was better than was obtained by the one-step aliquot methods (Experiments 6 and 7) used for the strips cut $\frac{3}{8}$ by $\frac{3}{8}$ in. Soaking the strips in water for 15 min. (Experiment 8), prevented grayish discoloration. Soaking them for about 3 hr., then parboiling, and cold dipping (Experiment 9), appeared to make the product very slightly mealier in texture, slightly less oily, and higher in yield, but weaker in natural potato flavor.

When all the potatoes were cooked in one lot, the rate of frying seemed to be too slow. The striking contrast between these French fried potatoes and the ones which were heated too rapidly (Table 1, Experiment 7) suggested that "a happy medium" in frying temperature and time might produce the desired edible quality.

Data on frying temperature and time, resulting from preliminary studies of two-step methods (Table 2, Experiments 10 to 13), showed no extremes, that is, they followed a pattern of moderation. Therefore, two-step frying was selected as the most promising for further investigation. Pre-treating the potato strips by parboiling and cold dipping again produced mealier and less oily French fried potatoes in some of the tests, but in others it failed to prevent limp and soggy texture. Apparently the relation of frying temperature to time was an important factor affecting texture. Again, as in the one-step method, parboiling and cold dipping "diluted" the potato flavor. Therefore, pre-treatment by soaking in water for 15 min. was considered sufficient.

Data obtained in standardization tests are presented in Table 2, Experiments 14 to 19. The results showed that French fried potatoes of *excellent* texture were obtained by shortening the parfrying time, on the average, and in the final frying raising the temperature of the fat to 210°C. (410°F.). The *color* of the product was mainly golden brown. The *flavor* which was good, was due both to the inherent characteristics of the potatoes and to the peanut oil. The peanut oil imparted a delicious "bouquet" to the potatoes at its first use, and it usually could be used about twelve times without having the flavor termed "stale," or "old fat," a result in general accord with the report of King and her associates (7). The degree of oiliness of the French fried potatoes was slight to moderate, compatible with crisp and mealy texture.

The two-step method as given in Table 2, Experiments 14 to 19, had the following advantages in addition to the production of six servings of excellent French fried potatoes ready to serve at the same time: simple pre-treatment; short exposure of potatoes to frying temperature—only 9 to 12 min.; and good yield. The working time as defined was approximately $\frac{1}{2}$ hr.

For convenience, since the products showed practically no differences resulting from the variations in the time and temperature of cooking, the following conditions were selected as standard for use in the studies of nutritive value (1): *Step 1:* parfrying the six servings of potatoes in four equal portions, each for 2 min. with initial temperature of fat at 195°C. (383°F.), and *Step 2:* final frying of all parfried potatoes with initial temperature of fat at 210°C. (410°F.) and the final temperature at 180°C. (356°F.).

Summary

Methods of French frying potatoes from Washington, D. C. markets by procedures in general home use were investigated. Several lots of the potatoes were non-mealy, or slightly-to-medium mealy when identified as to mealiness by a salt density method. The size of cross section of potato, kind of pre-treatment, temperature of fat, and length of cooking time were varied. A two-step method for French frying potatoes was standardized, giving a product of outstanding quality regarding color, texture, flavor, and good yield, with reasonable use of time and fuel.

REFERENCES

(1) Hewston, E. M., Dawson, E. H., Alexander, L. M., and Orent-Keiles, E.: Vitamin and mineral content of certain foods as affected by home preparation. U.S.D.A. Misc. Pub. No. 628, 1948.

(2) Wright, R. C., Peacock, W. M., Whiteman, T. M., and Whiteman, E. F.: The cooking quality, palatability, and carbohydrate composition of potatoes as influenced by storage temperature. U.S.D.A. Tech. Bull. No. 507, 1936.

(3) Williams, A. W., and Gray, C. E.: Fats and oils in cookery. Cooking temperatures. Univ. Ill. Bull. 14: No. 47, 1917.

(4) Grim, N. G., and Eheart, M. S.: The chemical, physical, and culinary properties of peanut oil. J. Am. Dietet. A. 19: 618, 1943.

(5) Broeg, W. E.: A new day in fat frying. Food Industries 12: 51 (April), 1940.

(6) Smith, O.: Potato mealiness determined by specific gravity. Farm Research (N. Y. State Exper. Sta.) 11: 13 (No. 4), 1945.

(7) King, F. B., Loughlin, R., Riemenschneider, R. W., and Ellis, N. R.: The relative value of various lards and other fats for the deep-fat frying of potato chips. J. Agric. Research 53: 369, 1936.

Editorial

GETTING APPLES TO TOWN[1]

In talking about public relations, I would like to suggest that probably the best public relations is simply doing the best job when and where it needs most to be done. We have heard a great deal about public relations in the past ten or fifteen years. (As a matter of fact, it has become in some quarters something of a cult, something of a fad.) Everyone claims interest in public relations, although I am afraid there are many people who haven't the faintest idea just exactly what they mean. All sorts of techniques, all sorts of methodologies are set up. Schools of public relations are being established. But I think we are developing a sort of vague feeling—and a very healthy one—that public relations is something in which all of us should be interested.

I think we are also developing a healthy feeling that public relations is not a function of public relations directors or public relations specialists in any field, but rather, the function of every person in an organization, that an organization is always measured by the attitude, the activities, the effectiveness of all persons in that organization.

One phase of public relations, one method whereby we meet and affect our public, is through the platform speech.

PURPOSE OF PUBLIC SPEAKING

If I were to set up a text, a simple formula for such a speech, I think it would be this: No one wants to hear *you* talk, but many may want to hear *what* you have to say. I believe that to be one of the fundamentals that I would propose for anyone interested in the field of platform speaking. Get over the idea that anyone particularly wants to hear *you* talk, but remember always that they may be interested in *what* you have to say.

Much has been said about the function of speech—that it is a remarkably effective method for "winning friends and influencing people." The end result of such philosophy is seen in many public speakers who constantly direct their efforts toward becoming personally more powerful through public speaking, personally able to "win friends and influence people" through public speaking. I would say, however, that the person who engages in public speaking for the primary purpose of winning friends and influencing people will do neither, but the person who possesses an honest idea and conveys it to people who want to hear it or who can be made to want to hear it, probably does both—probably does make friends and probably does influence people.

The first fundamental of all public speaking, therefore, is a recognition by the speaker of his proper relationship to the whole speech process. It must always be remembered that in all such group contacts the important elements are the audience and the idea. The speaker is only something of a bridge that lies between the two. Let's analyze this speech situation just a little. On one hand is the audience, the group of people in whom you are interested. On the other, are the ideas. And in many, many cases there is an awful void that lies between the two. Over there is the audience, and the function of the speaker is to attempt to communicate with that audience, to attempt to reach that audience through a very tenuous sort of thing—speech.

Now speech is not a "natural" function—a gift of the gods. It is not even a primary function of the body. It is a learned response. The body was not equipped with special organs for the purpose of speech; there are no muscles of the body devised for the function of speech. The lungs were certainly made for some other purpose than to propel air over the folds of the larynx. The muscles that control the lungs do not have a primary speech function. The tongue is for purposes of taste, the teeth for biting, and the larynx is a protective device. All of these structures were made for some other purpose, yet through a process of trial and error over a long history, through the development of the human race, we have devised a number of series of grunts, gurgles, and hissing sounds which, in combination, have come to express relatively universal ideas. And we use it as a method of communicating experiences, real experiences to a group of people who (at least so a speaker believes) have not already had those same experiences.

ANALYZE YOUR AUDIENCE

So, here is this audience, and obviously the first job the speaker must do is analyze that audience. Who are they? I think probably the first thing he

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 12, 1949.

must remember (and I would say this is very important) is that the audience is made up of human beings. The person who is not interested in human beings will never be a good public speaker or a good communicator of any kind, because, beneath all honest and effective communication, must be an honest, actual interest in people—an honest, actual consideration for the things they believe and the things they know. He must consider them as people and consider what their individual interests are.

How many times have you heard public speakers who were perhaps sufficiently enthusiastic about their own subject matter, but who assumed that everyone in the audience was equally interested? They went their merry way talking about things in which the audience was not interested and completely missing the fact that the members of that audience were evidencing their disinterest in what they had to say. This audience, these people, these individuals—where do they come from? What are their interests? What do they believe? How much information do they already have on the subject about which you want to talk?

These are questions that every speaker needs to answer, needs to analyze. What is the level of their vocabulary? I should think, for example, that you who are interested in such technical subjects as dietetics might well analyze the audiences to whom you are going to talk. What is the level of their technical vocabulary? If you were talking to me, I confess that I don't know—well, I don't even know the language well enough to tell you what I do not know. So, when you talk to me, you need to begin at the very beginning. On the other hand, if you are talking to groups in this meeting here, obviously the level of their technical vocabulary is considerably higher.

What might they want to hear, or why might they want to hear what you have to say? You are invited to speak to a group, and you, as a speaker, must say to yourself, "Why? It's not that they want to hear *me*. There are many other people who undoubtedly are better looking than I am. Much pleasanter to look at! Can it be that they want to hear what I have to say?" When you begin to ask yourself those questions, you discover that you have a real research job on your hands. You have a real job of analyzing, trying to understand in what your audience is interested. It is important to analyze them as to who they are, where they come from, what they know, the level of their education, the level of their technical language, and all of the other things that affect the speech you are to give.

ANALYZING YOUR SUBJECT

On the other hand, what about those ideas you want to communicate? You must ask yourself several things about those ideas, and one of them is: Do you really know those ideas? I have heard a great deal about persons who say they are frightened at the idea of getting up and speaking to a group. Now, I can believe that after a number of successive experiences, you may build up a psychological attitude of that kind. But in our beginning classes in the field of speech, we point out very carefully and, I think quite truly, that the first fundamental of overcoming any tendency toward embarrassment or stage fright is to have a wealth of ideas. If you really know what you are talking about, it's a wonderful tonic—a great aid to self-confidence. How much should you know? Well, it's like the iceberg which is one-seventh above the water and six-sevenths below (or whatever the proper proportions are). But, nevertheless, if you are going to talk for 20 min., I have a hunch you should *be able* to talk 24 hr. about that subject. Then you can choose to limit your talk to 20 min. You should have ideas, detailed knowledge that will never appear. But only through that knowledge can you have enough background to judge for yourself whether this idea is important and that one unimportant. Believe me, if there's any danger of your "running dry" in 20 min., you're not sufficiently prepared.

Do you really believe those ideas are worth saying? Most of us have a tendency to sell our own ideas a little short, and I would advise against that.

Are they prepared for effective utterance? Are they sufficiently organized—for example, outlined? We talk to students many times about having at least an outline for the speech they are going to give. I get the impression many times that the student prepares an outline so that he will know *what to say next*. The function of an outline is not to tell you what to say next. Its function is to tell you what *not* to say, to avoid unimportant details, trivia. If you are sufficiently prepared, it takes an outline, usually, to keep you from wandering all over the lot, talking about a lot of things that are not too important.

TECHNIQUES OF SPEECH MAKING

Well, here are the ideas, here is the audience, and the speaker is obviously only a bridge between the two. But you say, all this is concerned with what comes before the actual speech takes place—this analysis of the audience, this preparation of your material, this organization, and so forth. What about the actual speech? What can I learn? What devices are there to make me an effective speaker?

I think probably there has been more mumbo-jumbo about speech techniques in the past fifty years than anything else—with the possible exceptions of psychiatry and dieting. Everyone wants to get in on the act when it comes to making an effective speech, and once again you see little schools popping up all over the country guaranteed to teach

you to be an effective speaker in twelve easy lessons. Ordinarily, they present a lot of extraneous information about gesture, and so on, which is guaranteed to make effective speakers. As far as I am concerned, most of this is pure double-talk, with about as much common sense as most of the diets probably have.

What about gesture? Well, let's say there should be physical animation in good public speakers. But, I am far more interested in the fact that speech requires physical energy than I am in "opposition of head and arm." Speech is a muscular process. Speech takes place because of the energizing of certain muscles, and you can't get along without that energy, anymore than you can run without physical energy. I think a person who is just learning to run should be taught the fundamentals of physical energy first, and then spend some time on the refined techniques peculiar to racing. I would say the same thing for speech. Just get the idea that it requires effort, that it requires physical energy, that it requires physical activity. I would not worry too much about gesture.

What about the "pear-shaped vowels" that we used to hear so much about and which, thank goodness, are not heard about so much today? Well, I am far more interested in naturalness than I am in pear-shaped vowels. Your natural speech, your regional speech is fine, and no one will notice it unless it's pretty bad. The only thing that I would remember is that to get a sound out, the oral aperture must be open. If it is open, I think probably you will get along very well.

What about articulation, diction? Yes, of course, these are needed. But I am far more interested again in energy and enthusiasm, born out of the feeling that you are the possessor of facts and that you are interested in transmitting those facts. Give me a person with that sense of energy, and I'll not have too much trouble with tendencies toward slovenly, half-articulated speech.

What about standing position, "the left foot slightly thrust forward"? I am far more interested, again, in personal enthusiasm. If you are really interested in that audience, if that feeling of interest in your audience is there, I wouldn't worry about whether it was my left foot or my right foot forward, or whether it was slightly turned out or anything of the kind.

True, there are precise methods of doing these things, there are definite ways. There are techniques that the professional speaker might want to learn. But for the simple communication of ideas, I would forget them. You are interested in fundamentals, I think, not fine techniques. Speakers differ, ideas differ, audiences differ, but the fundamentals are still the same.

Lew Sarret told us one time something about the writing of poetry that I think is true of the preparation and delivery of a speech.

"The writing of poetry," he said, "is like taking a load of apples to town. First of all, you have to have the apples (ideas). Now, it may be any kind of an apple; it may be a fine cooking apple, or a lovely eating apple. It may be bright and beautiful, it may be very pale but sweet. There are all sorts of apples (all sorts of ideas), but you *have* to have apples.

"Then, too, you must have a conveyance of some kind (the structure of the speech). It may be a very glossy sort of thing, suave, polished; or it may be a pretty heavy work wagon of some kind that rumbles along, a bit awkward, maybe, but able to carry a *big* load of apples (a lot of ideas). There must be a driver (the driver, of course, is you). The driver must know his business. He must know how to drive, and he must be interested in the apples. But, most of all (and I think this is true of the presentation of a speech from the platform just as much as it is in the writing of poetry), the driver must be intensely interested in getting that load of apples to town."—*R. Russell Porter, Coordinator of Radio, University of Denver.*

SELLING OURSELVES[1]

If we are going to "sell ourselves," we must have something to sell, because the first thing any buyer wants is value or quality. Therefore, our first objective must be to clarify our purpose in living, of knowing what it is that we most want to achieve, and so living that we will achieve it. I recall how a close friend went about getting a position. She listed for herself the objectives she wanted to achieve in life; then she started out to find the kind of position that would help her achieve those objectives, and before long she had actually found such a position. Now she is busy achieving her objectives.

Surely, then, the first thing we must determine about "selling ourselves" is to make sure that we are so living up to our objectives in life that we really have something to sell. Of course, we all have a different way of defining those objectives. We all have a different purpose, but there are so many fine objectives and so many fine purposes to put into effect that when we put them together—each for herself—every one of us will have something very worth while to sell.

WHO ARE OUR CUSTOMERS?

Next we must determine *to whom* we are selling what we have to sell. Here we must realize we can never "sell ourselves" just to the people to whom we might choose, but that we are constantly "selling ourselves" adversely or favorably to everyone with

[1] Presented at the 32nd Annual Meeting of the American Dietetic Association in Denver, on October 12, 1949.

whom we come in contact. Many times the people who are serving under us—or with us—are doing fine jobs, and the better we know them, the more we realize that they, too, are achieving a great purpose—that they are people to whom we really want to "sell ourselves" just as much as we do the so-called "higher-ups." So, having determined what we have to sell within ourselves, let's realize that we should also "sell" everyone with whom we come in contact.

HOW TO SELL OURSELVES

This, of course, leads us to our third point of consideration, and that is: *how* are we "selling ourselves"? I have listed in my mind the personal qualities that would seem to be important if we are to "sell ourselves." In *Time* for October 10, 1949, a cover story was published about Margaret Clapp of Brooklyn College who is now President of Wellesley College. She was chosen out of twelve hundred candidates for this all-important position, and when the trustees came to interview her, only six possible candidates remained to be screened. This article in *Time* listed so clearly and concisely the qualities and the ways in which she "sold" herself to the trustees that I am sure they are worthy of consideration on the part of all of us.

Miss Clapp was teaching in Brooklyn College last spring when Wellesley's trustees called upon her. She was Assistant Professor of History, and she had no idea that her visitors might want her for this very important position. But she did "get the job," and she is also what *Time* calls a "well rounded first lady." Here, then, are her qualities—her qualifications, if you please—as listed in *Time*.

I was interested that the first statement made about Miss Clapp was that she had an *attractive appearance*. She has "deep brown eyes," said *Time*, "and dark wavy hair. In her bright red dress, she seemed too slim and pretty to be a historian of note." As dietitians, we know what it means to work at being "slim."

Then, Margaret Clapp's second quality was *poise*—for, according to *Time*, the second thing the trustees noticed as they sat in her class and listened to her, was that ". . . she spoke softly . . ." We all wish to keep impatience out of our voices; we all know what it really means to *speak softly* always. In going on with the description, *Time* said that Miss Clapp ". . . seldom moved her hands." That is something else to think about.

Apparently she also has great *discernment*, *wisdom*, and *tact*, for the trustees noted that when her students interrupted her with questions, she "sometimes . . . answered quickly, sometimes led a lively discussion" leading them to find the answer for themselves. Surely one of the best ways to win people to our viewpoint is to make it possible for them to uncover the answer for themselves.

We need to have the quality of *assurance*, too. Edward Weeks, *Atlantic Monthly* editor and one of the trustees of Wellesley, covered this point by asking Miss Clapp, "Do you sleep well?" "Yes," she said, "I am not a worrier." She does not take any false sense of responsibility. Surely this is another quality which helps us to "sell ourselves" and which makes us happier human beings with whom to live and work.

Then, too, the fact that Miss Clapp has *serenity* is evident, for the article went on to say that after she had taken up her work at Wellesley, "as she conducted her first chapel, . . . it was as if she had been a president for years."

Finally, Miss Clapp *had a plan for her life*. She always knew what she wanted to do next. This was evident even in her childhood when she tried to tag after her two older brothers and her sister as they marched off to school.

She also thinks deeply for herself. *Time* reported that her brother said of her, "She always had brains . . . " and the article also described her as talking "in great lofty generalizations and big huge principles . . . " We must know *what* we think, and we must know *why* we think it, if we are really to "sell ourselves," yet we must always be ready to change our thinking when new light comes.

Surely today we can't be a person who is unwilling to change her mind if there is a reason to change it, and certainly our present world has need for this kind of thinking. Today we have problems having to do with race, color, and creed. We have the atom bomb. We have the greatest world problems that have ever come to any group of people. And so we find that at Wellesley, Margaret Clapp is planning that her students for the first two years be given a broad general education in order to understand this world better; then the girls choose their majors for the last two years. It is after this that they take up the concrete courses having to do with a career, for Miss Clapp believes with this type of general background, the girls are indeed ready and able to "study medicine, swim the English Channel," take up a career as a homemaker, or to serve any of the occupations or professions they may wish to enter. "Woman's place," Margaret Clapp says, "is anywhere." And how true that is, if we as women—in fulfilling that place—really have something to "sell," know to whom we are selling it, and put into practice the qualifications which are essentials to succeed in selling it.

Every quality that we have listed here and that Margaret Clapp seems to epitomize so well is the thing that we all want and are all working within ourselves to achieve. True, some of us achieve some of our objectives today—some tomorrow; but does that matter too much, as long as we are really trying to achieve them?—*Eleanor Howe, Editor,* WHAT'S NEW IN HOME ECONOMICS, *Chicago*

Current Comment

DIETETICS FROM THE MOUNTAIN TOP[1]

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When the day's work is done, the modern dietitian needs to ascend the mountain top and get an overall view of how her work fits into the pattern of the whole. The world's work is done in the valleys, hemmed in, surrounded by the rush and bustle and routine, but from the mountain top comes the perspective, the meaning to all that you do throughout the busy day.

Some miss the mountain tops because they are weighed down with chores. You have seen the dietitian who is so absorbed with charts and orders and diet calculations that she never had time to see the warm color that came back to Johnnie's cheeks because of the good food those orders brought to him; nor time to see the new light that came into the eyes of Johnnie's mother as she watched her boy come back to health again. You have seen the dietitian so buried in figures and calculations that she never had time to see Mr. Jones gain confidence and self-respect because he could control his diabetes and could hold a steady job and so support his family once again.

Perhaps you recall the old rhyme:

> If your nose is close to the grindstone rough
> And you hold it there long enough
> In time you'll say there is no such thing
> As brooks that babble and birds that sing;
> These three will all your world compose—
> Just you, the stone, and your darned old nose.

Yours is work which demands skill, specialized training, accuracy, and attention to detail, but do not let it bury you so that you cannot climb to the mountain top and get a broader, finer vision of what your work means.

YOUR PROFESSIONAL RESPONSIBILITIES

It takes the mountain top, too, to view the Association in which you are qualified for membership. The American Dietetic Association is very young as a professional organization, but its achievements are many, and its record is a splendid one with its members having served in two World Wars. There were just fifty-eight members when the Association was organized in 1917; now, there are over 8000. You do not need to be reminded of the high standard of membership of the Association, requiring four years of college work with a degree in home economics and one year of internship. You have met these standards, and you are qualified to join the ranks of those 8000 dietitians who can proudly say, "I am a member of the American Dietetic Association." It is a goodly company of professional women—and some men—that you are to be counted among. At first, the membership was almost wholly engaged in hospital dietetics, but with progress in science and the growth of nutritional knowledge, the needs of expansion of dietetic information have been more fully recognized and many more opportunities are open to the dietitian today. Study of the occupations of the membership will more clearly illustrate this point. For this year, 49.9 per cent of the members are in hospital dietetics, 7.4 per cent in school and college food service, 6.7 in professional education, 4.2 in community nutrition, and 3.1 in commercial food service. And in case you thought the choice of dietetics "doomed" you to a career for the rest of your life, remember that 20.2 per cent of our members are at present homemakers; and this does not include those who are married and holding positions as dietitians. Dietitians do not lack charm and femininity!

As dietitians you now should accept the responsibilities that go with being a professional person. Just what does that mean? As used in the other great professions of medicine and nursing, and now for the newer profession of dietetics, I believe it means this. A "professional" person is one who:

(a) Finds her greatest satisfaction in service to mankind rather than in profit and financial gain.

(b) Has specialized training and continues to study and learn through individual effort and particularly through attendance at professional meetings and active participation and contribution to those meetings.

(c) Upholds the honor and dignity of her profession in every way, basing her work on research, experiment, and proved facts and not on fads and fallacies.

[1] Presented at the graduation of dietetic interns at Kennedy Veterans Administration Hospital, Memphis, on September 13, 1949.

(d) Conforms to the code of ethics of the profession. This code is based on courtesy, honesty in thought and deed, and consideration for others.

(e) Has high standards of personal conduct.

Yes, the professional person has real responsibilities!

THE SEAL OF OUR PROFESSION

I hope that you are thoroughly familiar with the official seal of our Association and that you have been inspired by each detail of it. I am filled with admiration for the founders of our Association and the genius they displayed in preparing that seal. The Latin motto when translated reads: "To benefit as many as possible." On the left half of the seal is a balance representing accuracy and careful evaluation. The balance is combined with the caduceus, or the wand of Mercury entwined by the serpent of Aesculapius, a symbol of healing, suggesting the relationship of dietetics to medicine. On the right half of the seal is a cooking vessel portraying the art of food preparation. The design is enclosed by sprays of wheat, synonymous with bread, the staff of life, and by acanthus leaves, symbolic of life and growth. The top of the insignia is crowned by a cornucopia signifying the abundant diet. There it is—symbolic of what the profession stands for!

HISTORY OF DIETETICS

Dietetics has no founder to call by name as medicine has Hippocrates and nursing has Florence Nightingale; nutrition looks to Lavoisier as the father of its science, but we do not know who was the first dietitian. It was a man who can probably lay claim to being the first *modern* dietitian—Alexis Soyer, famous London chef who went to Scutari during the Crimean War and set up diet kitchens there for the soldiers. We do know the first American dietitian, Sarah Tyson Rorer. The centennial of her birth was celebrated last fall at the national convention of our Association in Denver.

Recognition of the importance of food and diet goes back to earliest times; we can trace it through ancient writing. Babylonian clay tablets from 2500 B.C. were inscribed with details of food. The Greeks relished food, and Roman banquets were famous. Early manuscripts from the first century give recipes. However, the first printed cook book is believed to have appeared in 1480 written in Latin by Baptista Platina. This book contains about 300 recipes and "treats of the mode of life most beneficial to the human body and discourses at length on the quality and varieties of meat, fish, fruit, and vegetables and how they nourish the body and how they should be prepared."

The old cook books are treasures of information, being a combination of cookery and medicine, and they not infrequently included moral conduct. One published in 1701 had the title, "The Whole Duty of a Woman or a Guide to the Female Sex from the Age of Sixteen to Sixty, etc. Being directions how women of qualities and conditions ought to behave themselves in the various circumstances of this life for their obtaining not only Present, but Future Happiness." This book was written by a "lady" and included "Choice Recepies in Physick and Chirurgery with the whole art of cookery, preserving, candying, beautifying, etc." Possibly some of you will be stimulated to study these old books and learn more of the history of dietetics.

A DIETITIAN'S THREE NEEDS

And so from the mountain top we see our profession and can look back into history and see the progress of dietetics, but time will not permit us to linger on this view.

From the mountain top, there is a third thing I want you to see—the three needs of every dietitian. First of these is to *read*. "Reading maketh a full man," Bacon said. And in this field of applied science you must read widely to have full knowledge of what has been done. Sir William Osler, that great man born just one hundred years ago, who became the outstanding physician of his day, teacher, historian, writer, bibliophile, and man of letters, demonstrated what a professional man can do who works in the valley by day and ascends the mountain top in the evening. Osler had this to say about reading: "With how little reading a doctor can practise medicine is astonishing, but it is not astonishing how badly he may do it." We could so easily paraphrase this, and how true it would be: "With how little reading a dietitian can plan diets is astonishing but it is not astonishing how badly she does it." Read your JOURNAL, read other scientific journals, read biographies, and gain an insight into the lives of leaders in the field. Read for recreation and refreshment of your inner spirit.

But do not stop with reading lest you be over full of other men's knowledge. *Think* on what you read; let the ideas roll around in your mind, turn them over, look at them from all angles. *Think*. It is not an easy process; it may be disturbing, particularly if you think on current social and international problems. Of course, there are two ways that you can avoid thinking; either doubt everything or believe everything you hear or read. Progress in medicine was stopped for thirteen hundred years because everything Galen wrote in the second century was believed implicitly. The words in the book and not the actual observations were believed; thinking was not permitted.

Do not stop with the thinking process, however. Thinking alone will not help mankind nor advance civilization. There must be a third process—one of *doing*. Put your thinking into action; try it out. I would remind you of the words of the great surgeon, John Hunter, to his pupil and friend, Edward Jenner,

When Servings—and Savings—
Must Be Multiplied—
TRY THESE 50 RECIPES
50 RECIPES
—Serving 50
With 12 Sample Menus using these recipes
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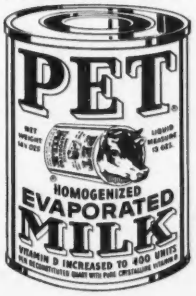

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when he said, "Do not think, experiment." It is appropriate here to consider a little more of the background for Hunter's words, for this is the bicentennial of the birth of Edward Jenner. Jenner's name is forever linked with vaccination against smallpox. Jenner had long been absorbed with the observation that dairy-maids who had had cowpox did not take smallpox. He thought about it and, it is said, even bored his professional friends by talking about it. Hence, Hunter's words to him to *do* something about it.

Dietetics is an applied science. Thus the very nature of the profession you are now entering as a qualified person implies action on your part—that you will put into practice the knowledge of nutrition.

Take time to ascend the mountain top and see your work, see your profession, and see the three needs for *reading*, *thinking*, and *doing*.

These are not dreams or rosy pictures; these are facts seen from the mountain top, where the routine takes its true place as part of a larger service, where the discouragements and frustration drop away and the pattern of life takes on its true shape and form.

But one word of warning—do not linger too long on the mountain tops entranced with what you see. Come down to the valley to work and to be a part, just a small part it is true, but nevertheless a vital, functioning part among those who work to serve their fellow man and, in the words of our motto, "to benefit as many as possible."

Adapting Air-Line Food Service to Hospitals

In September, 1949, the Department of Dietetics, Barnes Hospital, St. Louis, began a program of adapting "air-line" type food service to patients' food service.

The air lines pioneered a special type of food service when they began serving meals aloft in 1929. To meet the requirements of light-weight equipment and limited space, they developed special equipment capable of holding food at correct temperatures for unpredictable lengths of time and under variable conditions. This service appeared to the administration of the hospital and to the dietary department to be economical and functional, and it was decided to experiment with its adaptability by inaugurating it on a small scale for one private division of the hospital.

The adaptation of air-line type of food service and menus to a hospital food service meant the use of special equipment and plastic dishes which the hospital had not used previously. It involved a centralized type of food service using specially adapted food carts instead of conveyors as in many centralized services. It also made necessary considerable "scouting" and research to discover the various companies which could supply the special equipment, such as plastic dishes, electric hot food ovens, beverage jugs, cellophane packets for silver, stainless steel removable handles for cups, plastic compartment trays, and so on.

In operation, the patient still has a selective menu. The difference is in the assembly of the tray. The tray is assembled with the cold foods first and stored in a tray carrier which has been pre-cooled in a dry-ice compartment. The patient's choice of hot food is placed on a service plate which is put in the electrically heated, insulated oven. Beverages, either hot or cold, are placed in special beverage jugs. A specially designed cart is used to convey the tray carriers, heated oven, and the jugs to the division where a maid assembles the tray and serves it to the patient.

The complete tray is light in weight, attractive, compact, and easy for the patient to handle. The trays and dishes are plastic, thus reducing breakage, although at the same time allowing the use of sterilizing temperatures approved for dishwashing. The air-lines first used plastic ware in 1936, and that feature has been adhered to in this experiment.

After using this plan for a trial period, the service has been found satisfactory from both the standpoint of operation and improvement of the patient's food service. In operation, it affords direct control of quality and quantity, provided, of course, that a qualified dietitian can supervise the work. The patients like the new type of service, and the nursing department also feels that it is an improvement. Present plans are to extend the use of this type of service to other divisions of the hospital.—*Henrietta Becker and Joyce Gibbons, Department of Dietetics, Barnes Hospital, St. Louis.*

EXECUTIVE SECRETARY

The Executive Board is happy to announce that at their request, Gladys E. Hall will continue in the capacity of Executive Secretary of the American Dietetic Association until the close of the current fiscal year, June 1, 1950.

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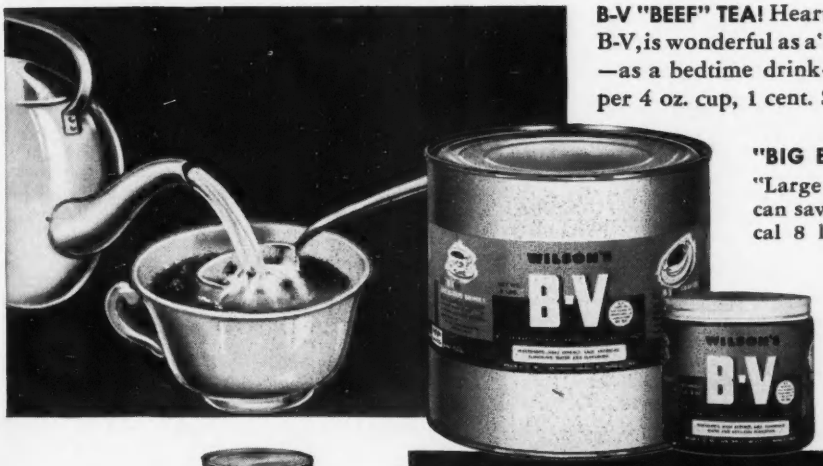

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Book Reviews

Rose's Laboratory Handbook for Dietetics. 5th ed. By Clara Mae Taylor, Ph.D., and Grace MacLeod, Ph.D. New York: The Macmillan Company, 1949. Cloth. Pp. 358. Price $5.

This invaluable handbook, so well known to all older students of nutrition in its four earlier editions, has been completely revised and rewritten by former co-workers of Mary Swartz Rose at Teachers College, Columbia University. Both Dr. Taylor, Professor of Nutrition, and Dr. MacLeod, Professor Emeritus of Nutrition, are eminently qualified for the meticulous effort and judgment this handbook requires. Their labors, experience, and vision have produced a compilation of up-to-date data that are eagerly sought by dietitians, nutritionists in community and public health agencies, teachers, and advanced students of nutrition. All of these professional groups have long awaited this revision and are grateful to the authors.

The purpose of this book as stated by Mary Swartz Rose in the preface to the fourth edition is "to explain the problems involved in the calculation of food values and food requirements and the construction of dietaries, and to furnish reference tables which will minimize the labor involved in such work." The present authors have maintained this original purpose but have made helpful changes in organization and content.

This edition is divided into four parts. In Part I are briefly discussed the composition of food materials and the functions of food and food requirements for normal individuals under varying conditions of age. The Recommended Dietary Allowances are given in shares as well as in the figures stated by the Food and Nutrition Board of the National Research Council.

Part II deals with many problems in dietary calculations. These range from determining nutritive values of any weight of food material to planning dietaries for individuals of various ages or for a family. Calculations of dietaries by shares and by the short and longer method are included.

Part III consists of twenty-two different reference tables including useful equivalents of weights and measures, vitamin equivalents, weight per bushel of some common foods, and weight and height data for all age groups. The conversion tables of grams to ounces, ounces to grams, kilograms to pounds, and inches to centimeters will be found useful for busy dietitians and nutritionists.

Part IV is devoted to tables of food composition. Dietitians will find the first section most helpful. The protein, fat, carbohydrate, and caloric values and some measures are given for 1 lb., 1 oz., 100 gm., and 100 calories of several hundred foods and prepared dishes. Mineral (calcium and iron) and vitamin values are given in a second table of commonly used foods. Supplementary tables give essential amino acids, oxalic acid, acid-base, and mineral and vitamin values not included in the first tables of this section. Approximate vitamin losses in cooking foods are also neatly summarized. Nutritive values of edible portions of foods in shares are given in the last portion of the book.

A four-page bibliography of sources of information regarding composition of foods will be of special interest to research workers. And, an excellent index should enable readers to find any item with maximum speed—always a prized characteristic of a handbook which serves professional groups.—*Anna dePlanter Bowes, Chief, Nutrition Division, Pennsylvania Department of Health, Harrisburg.*

The Story of Blood. By John H. Glynn, M.D. New York: A. A. Wyman, Inc., 1948. Cloth. Pp. 285. Price $3.

The Story of Blood as told by Dr. Glynn is the story of health, nutrition, resistance to infection, antibodies, immunology, and allergies. In non-technical language with illustrations and analogies from everyday life, the findings of current research are presented in a way that holds the interest, makes enjoyable reading, and provides sound information.

Dietitians and nutritionists will want to use this book for their own information and will find many illustrations that will be helpful in work with patients.—*E. Neige Todhunter, Ph.D., Head, Department of Foods and Nutrition, University of Alabama, Tuscaloosa.*

Diet Manual. New York: Beth Israel Hospital, 1949. Boards, mimeographed. Pp. 49. Price $1.25.

The chief function of this manual, according to the foreword, is to serve the dietitians, physicians, medical students, and nurses. The diets are not intended for distribution to patients.

All foods included are in accordance with the Jewish Dietary Laws.

The first section includes general information on the ordering of diets and diet instructions, the Recommended Dietary Allowances as set up by the Food and Nutrition Board, National Research Council, and method of dietary calculation.

Approximately thirty individual diets are included, accompanied by a sample day's menu with its composition for calories, carbohydrate, fat, protein, calcium, iron, and vitamins.

The last section is devoted to the normal diet for children.—*Anne Hurevitz, Clinic Nutritionist, Mount Sinai Hospital, Chicago, Illinois.*

Secrets of Southern Cooking. By Ethel Farmer Hunter. Chicago: Ziff-Davis Publishing Company, 1948. Cloth. Pp. 389. Price $2.75.

From old cook books have come these recipes famous in the South. Mrs. Hunter has compiled a collection valuable to all interested in good food.

The chapter on breads includes old-fashioned beaten biscuit, crackling bread, hoe cake, and Sally Lunn. Among the soups are gumbo file and oyster stew. Shrimp creole and Sea Island deviled crab are among the tasty sea foods, and a 150-year-old recipe for stuffed ham is included in the numerous meat recipes. Here, too, is southern fried chicken. So it goes—pecan pie, white fruit cake, Natchez Spanish cream, and many other mouth-watering dishes complete this volume.

Directions are clear, proportions are accurate. *Secrets of Southern Cooking* would be a valuable addition to the cook book library of novice or gourmet.—*Virginia Monahan Bayles, University of Denver.*

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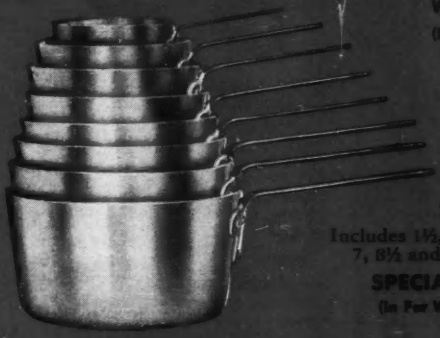

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Hermia M. Handt, and Marie L. Helldorfer, Veterans Administration Hospital, Hines, Illinois; Berdena Rosenow, University of Kansas Medical Center, Kansas City, Kansas; Mildred Bonnell and administrative interns, University of Washington, Seattle; Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; and the Journal Staff.

AMERICAN JOURNAL OF ORTHOPSYCHIATRY

Vol. 19, October, 1949

*Eating, sleeping, and elimination habits in children attending day nurseries and children cared for at home by mothers. N. Glass—p. 697.

Habits of Children. The behavior of nursery children as evidenced by their eating, sleeping, and elimination habits, did not differ significantly from that of children cared for at home. Each group consisted of forty-eight children, ages twenty to sixty-two months.

This study suggests that behavior problems are associated with parental attitudes and types of personality which were more important in determining good or bad adjustment than was attendance or nonattendance at a day nursery.

BRITISH MEDICAL JOURNAL

November 5, 1949

*Liver damage produced by feeding alcohol or sugar and its prevention by choline. C. H. Best, W. S. Hartroft, C. C. Lucas, and J. H. Ridout.—p. 4635.

November 12, 1949

*Risk of neurological complications in pernicious anemia treated with folic acid. M. G. Israels and J. F. Wilkinson.—p. 1072.

*Anti-histamines in the treatment of nausea and vomiting of pregnancy. T. Dougray.—p. 1081.

November 26, 1949

*Low salt diet in treatment of hypertension and hypertensive heart disease. H. O. Bang, P. Bechgaard, and A. L. Nielsen.—p. 1203.

Liver Damage Produced by Feeding Alcohol. In these experiments on white rats there was no more evidence of a specific toxic effect of pure ethyl alcohol upon liver cells than there was for one due to sugar. This conclusion is based on the observation that dietary supplements of sucrose caused hepatic lesions so similar in character and extent to those produced by an isocaloric amount of alcohol that they are indistinguishable. The results suggest that an imbalance between caloric intake and supply of accessory food factors is the cause of the liver lesions. Alcohol or sugar, when taken in excess, supplants choline-containing foodstuffs and at the same time, by decreasing the caloric intake, augments the demands for the lipotropic agents. An adequate supply of dietary choline or its precursor methionine (either free or in casein) protects the liver; neither excessive deposition of lipids or a fibrosis could be detected in any of the rats receiving lipotropic supplements. These findings are not necessarily applicable to human subjects.

Pernicious Anemia Treated with Folic Acid. A group of twenty patients with pernicious anemia, either untreated cases or relapsed cases, were treated with folic acid. Three had initial signs of subacute combined degeneration of the spinal cord and became worse neurologically after folic acid therapy. There was no specially dangerous point during folic acid treatment, and crises were spread out evenly over a three-year period. No sign was noted to predict neurological complications. The use of folic acid for treatment of pernicious anemia should be strictly limited to rare cases of special difficulty and should never be used on patients with subacute combined degeneration of the spinal cord.

Treatment of Nausea and Vomiting of Pregnancy. The use of anti-histamine drugs has been successful in the treatment of nausea and vomiting that is usual in the first trimester of pregnancy. It is effective in persons who do not respond to the usual dietary treatment. Many theories have been advanced. Cases are presented.

Low-Salt Diet in Hypertension. In Copenhagen an experiment with twenty-six people again proved that the restriction of sodium chloride will cause a fall in blood pressure and that the low-salt intake has favorable effects on cardiac edema. The diet contained less than 1 gm. salt.

GASTROENTEROLOGY

Vol. 13, November, 1949

*Liver function in chronic alcoholic patients. W. L. Voegtlin, W. R. Broz, W. E. Tupper, and M. M. Robinson.—p. 391.

*Experimental observations on cardiospasm in man. S. Wolf and T. P. Almy—p. 401.

Multiple polyposis of the colon. G. H. Schantz.—p. 430.

Liver Function in Alcoholics. Three hundred chronic alcoholic patients in a private institution were studied by liver function tests. Evidence showed that alcohol does not predispose to degenerative liver disease. Changes in tolerance to alcohol, delirium tremens, and sexual impotence seem independent of liver function. Even excessive amounts of alcohol before, during, or after acute hepatitis do not necessarily lead to serious liver damage.

Observations on Cardiospasm. Fourteen subjects complaining that swallowed food stuck in the retrosternal region were compared with twenty control subjects. Swallowing time of 30 cc. barium sulphate was noted before and after discussion of emotionally charged life situations. Hypermotility and obstruction in the esophagus occurred; relative security and relaxation were associated with diminution or disappearance of cardiospasm.

INDIAN JOURNAL OF MEDICAL RESEARCH

Vol. 37, April, 1949

*Carotenoid pigments of different cross-breeds of cultivated and wild varieties of tomatoes and the effect of further inter-varietal crossing on the carotenoid content. A. N. Bahl, J. C. Sadana, and B. Ahmad.—p. 183.

What to tell the WIFE of an Ulcer

You know it's no secret that special diet patients need special mealtime pampering from their wives. But a lot of wives still don't realize the importance of attractive tray and table settings. That's why Gerber's newly revised booklet has a whole section of simple, appetite-increasing service hints. They deal with everything from cleanliness to color.

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*Metabolism of the carotenoid pigments of the mango during the development of the fruit. J. C. Sadana and B. Ahmad.—p. 193.
*Mutual influence of minerals in metabolism. H. N. De and K. P. Basu.—p. 213.

Carotenoid Content of Tomatoes. The vitamin A potency of the different varieties of tomatoes tested varied from 3.2 to 28.7 I.U. per gram. In the species resulting from crossing, the vitamin A potency was sometimes less than in either parent; sometimes it was an intermediate value, such as 17.7 I.U. when the parent species had 23.7 and 12.4 I.U. respectively.

Carotenoid Pigments in the Mango. These experiments showed that all of the carotenoid pigments increased during the ripening of the mango. Vitamin A potency increased from 7.6 to 179.5 I.U. per gram. Beta-carotene increased at a greater rate than any other pigment. Unlike that in tomatoes and leafy vegetables, xanthophyll in mangoes also showed a similar gradual increase as the fruit ripened. An average-sized mango may synthesize 1200 mcg. beta-carotene in 24 hr.

Mineral Metabolism. The ingestion of large doses of either calcium, magnesium, phosphorus, iron, copper, or manganese increases the elimination of the others through the feces. The effect of excess administration of one element on the utilization of others was studied with six normal adults first on an almost mineral-free sago diet and second with rice and wheat diets of normal mineral content. When massive doses of one mineral were ingested with a low-mineral diet, the body lost through the intestines much of its reserves of other minerals.

INDIAN MEDICAL GAZETTE

Vol. 84, June, 1949

*Edema during recovery from anemia due to red cell regeneration hypoproteinemia. R. V. Sathe and R. N. Ichhaporia.—p. 233.

Hypoproteinemia. The value of giving a patient large amounts of plasma protein to produce diuresis and relieve edema is demonstrated. The case illustrates the role of osmotic tension in the formation of edema and in the secretion of urine. The renal failure could not be corrected by mercurial diuretics. The correction of hypoproteinemia by a diet of 100 gm. protein daily and plasma transfusions resulted in profuse diuresis and rapid regression of edema. Regeneration of hemoglobin, its effects on plasma protein and tissue protein, and theoretical considerations forming the basis of dietetic and parenteral therapy are reviewed.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 181, December, 1949

*The relation of amino acid availability in dietary protein to liver enzyme activity. J. N. Williams, Jr., and C. A. Elvehjem.—p. 559.
*Sodium and its relation to alloxan diabetes and glutathione. R. R. Grunert and P. H. Phillips.—p. 821.
*Observations on the interrelation of vitamin B_{12}, folic acid, and vitamin C in the chick. L. S. Dietrich, C. A. Nichol, W. J. Monson, and C. A. Elvehjem.—p. 915.

Amino Acids and Enzyme Activity. Evidence has been presented that liver xanthine oxidase activity can be used as a sensitive index of amino acid availability in dietary proteins. Using liver xanthine oxidase activity as a criterion, it has been demonstrated that methionine in dietary casein is not readily available to the rat. However, if either acid-hydrolyzed casein or a mixture of purified amino acids simulating casein is fed as the source of protein, the rat appears to utilize the injested amino acids much more completely. If the casein is increased to 40 per cent in the diet, the effect on liver xanthine oxidase can be overcome.

Sodium and Alloxan Diabetes. The effect of sodium and potassium on the induction of alloxan diabetes in the rat was investigated. A sodium deficiency was found to result in an increased incidence of diabetes in the rat. Potassium was not antagonistic to sodium under the conditions used, but desoxycorticosterone did protect the rat against alloxan. The influence of the sodium deficiency may be explained by the low level of blood glutathione that was found in these animals.

Vitamin B_{12}, Folic Acid, and Ascorbic Acid. Both ascorbic acid and vitamin B_{12} stimulate growth in the chick when fed a semi-purified ration with or without folic acid. The addition of both ascorbic acid and vitamin B_{12} gives a greater growth response than either alone. Both stimulate the synthesis of folic acid *in vivo*. The addition of both vitamins produces an increase of stored liver folic acid which is in excess of that produced by either alone. Folic acid stimulated the synthesis of vitamin B_{12} in the chick, as measured by liver storage.

THE JOURNAL OF NUTRITION

Vol. 39, October, 1949

*Experimental rat caries. III. The effect of bromide on experimental rat caries. R. F. Sognnaes.—p. 147.
The urinary excretion of pentose- and phosphorus-containing complexes in nutritional muscular dystrophy. A. S. Minot and M. Grimes.—p. 159.
*The essential amino acid (except tryptophan) content of colostrum and milk of the cow and ewe. K. A. Kuiken and P. B. Pearson.—p. 167.
*The nutritive value of canned foods. I. Amino acid content of fish and meat products. M. S. Dunn, M. N. Camien, S. Eiduson, and R. B. Malin.—p. 177.
The nutritive value of canned foods. II. Amino acid content of fish and meat products. J. B. Neilands, R. J. Sirny, I. Sohljell, F. M. Strong, and C. A. Elvehjem.—p. 187.
*The influence of optical isomerism and acetylation upon the availability of tryptophan for maintenance in man. H. R. Baldwin and C. P. Berg.—p. 203.
*The minimum riboflavin requirement of the infant. S. E. Snyderman, K. C. Ketron, H. B. Burch, O. H. Lowry, O. A. Bessey, L. P Guy, and L. E. Holt, Jr.—p. 219.

Effect of Bromide on Rat Caries. The absence of caries previously observed in rats bred by mothers subsisting on a natural stock diet, as compared to the extensive caries produced in rats bred on a purified ration, cannot be attributed to the presence of bromide in the stock diet. Rather, the addition of high doses of bromide to the purified ration, during the tooth development, failed to provide caries protection. The susceptibility observed in rats bred by mothers subsisting on a purified diet is not decreased, but appeared to be somewhat increased by adding bromide to the diet during the period of tooth development alone. The possibility is considered that bromide added to a purified ration may take the place of a factor more essential to the caries resistance of the developing teeth. Caries could be reduced, however, when the bromide supplement was continued after eruption of the teeth. This seems to suggest that one and the same factor (at least when added to a purified diet) may be ineffective or unfavorable to the teeth during their development and still be favorable after tooth eruption. It is suggested that more effective caries inhibitors may be found in food factors which exert a favorable action during tooth development as well as after eruption.

Amino Acids in Colostrum and Milk. Colostrum appears to provide special nutrients which enhance the chance of survival of the new born animal. It is richer in certain vitamins than milk. Not only is the protein content greater, but the protein distribution is entirely different from that of milk. Immune proteins are known to be transferred from the mother to her offspring through colostrum. The amino acid composition of the total protein of the colostrum and milk of the cow and the sheep has been assayed for arginine, histidine, isoleucine, lysine, methionine, phenylalanine, threonine, and valine by microbiologic methods. The milk protein from both species contained about 1.4 times as much methionine as the protein of colostrum, but only 0.6 times

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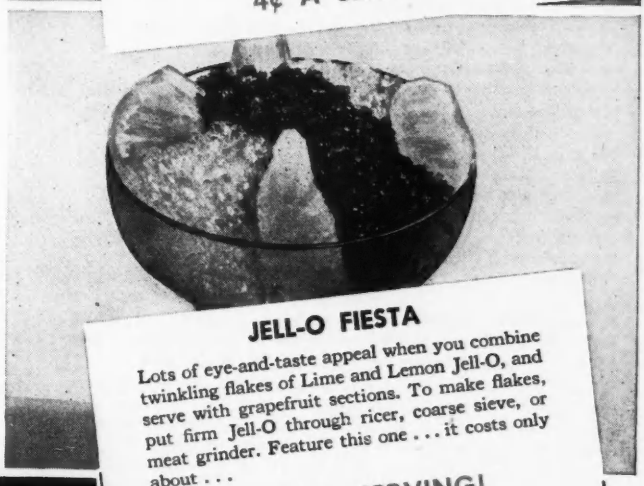

JELL-O FIESTA

Lots of eye-and-taste appeal when you combine twinkling flakes of Lime and Lemon Jell-O, and serve with grapefruit sections. To make flakes, put firm Jell-O through ricer, coarse sieve, or meat grinder. Feature this one . . . it costs only about . . .

2½¢ A SERVING!

GLORIFIED COTTAGE PUDDING

Top cake squares with a quick, delicious sauce made from Jell-O Lemon Pie Filling. Takes 9 oz. Filling, 2 egg yolks, 1 quart water (½ pint cold). Prepare according to package directions, adding 1 oz. butter. Garnish attractively for a tempting "headliner" that costs about . . .

4¢ A SERVING!

JELL-O, JELL-O PUDDINGS
JELL-O LEMON PIE FILLING

Products of General Foods

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as much threonine. Much smaller differences were noted in the relative proportions of the other amino acids. The amino acid patterns of the milk and colostrum of the two species are similar.

Amino Acids in Meat and Fish. In a study of the amino acid composition of fish and meat products a total of seventy-four individual samples were assayed in the two laboratories for the ten essential amino acids. Of this total, forty-one samples were assayed in both laboratories and the others were divided into two groups. In addition, aspartic acid, glutamic acid, and glycine were determined in all of the samples assayed at one of the institutions. It was established that the preservation processes and the microbiologic procedures employed were adequate. The distribution of amino acids in the canned fish and meat products were generally uniform. None of the amino acids determined was significantly altered by the heat processing.

Availability of Tryptophan in Man. Comparative tests have been made of the relative capacities of free and acetylated *l*- and *d*-tryptophan and of *dl*-tryptophan to support nitrogen equilibrium in the adult human subject when fed as a supplement in a diet otherwise deficient in tryptophan. Synthetic diets providing 0.1 gm. nitrogen per kilogram per day in the form of an acid hydrolysate of casein and enough more relatively pure carbohydrates and fats to raise the daily caloric intake to at least 42 calories per kilogram were subsequently employed. They contained approximately 25 mg. tryptophan and supported nitrogen equilibrium when supplemented with 200 mg. tryptophan per day. After the preliminary period of eight to nineteen days allowed for adjustment to the supplemented synthetic diet, responses to removal and replacement of the supplement were always fairly prompt, usually immediate provided that a high caloric intake was maintained. *DL*-tryptophan, in the amount of 400 mg. per day, promoted responses equivalent to those noted on 200 mg. of the *l*-isomer, but the response to 200 mg. *dl*-tryptophan per day were suboptimum. Daily supplementation with 200 mg. *d*-tryptophan failed to maintain nitrogen balance, but in one instance 400 mg. per day seemed to promote borderline response. Acetylation does not enhance the availability of *dl*-tryptophan for maintenance in the adult.

Riboflavin Requirement of Infants. Three male infants in good health, except for mental deficiency, ages twenty-two, fourteen, and thirty-two months, weighing 5.9, 8.6, and 9 kg., respectively, were maintained on metabolism frames permitting separate collection of urine and feces for five days out of every seven throughout the period of study. They were fed vitamin-free casein, commercial hydrogenated cottonseed oil, and a vitamin-free Dextri-Maltose in proportions to yield the following percentage distribution of calories: protein, 15 per cent; fat, 35 per cent; and carbohydrate, 50 per cent. Each child received 100 calories per kilogram of body weight daily. Minerals were supplied in the form of mineral mixture. Fat-soluble vitamins were also furnished. The water-soluble vitamins were administered as a supplement which was divided into four equal portions given at equally spaced intervals during the day. An intake of 0.4 mg. riboflavin per day by the infant served to maintain adequate blood levels, to maintain the urinary excretion at the upper limit of the zone of minimum excretion, and was not associated with clinical evidences of deficiency. The limitations of these studies and the relation of the above figure to the minimum riboflavin requirements of the infant are discussed.

THE JOURNAL OF PEDIATRICS

Vol. 35, November, 1949

*A review of 396 cases of acute diarrhea in which early oral feedings were employed in treatment. J. E. Mitchell, W. D. Donald, and M. Birdsong.—p. 529.

*Observations on the treatment of a case of glycogen storage disease. G. H. Lowery and J. L. Wilson.—p. 702.

Diabetes mellitus in children. H. J. John.—p. 723.

Acute Diarrhea. Diarrhea is usually treated by intravenous replacement of water and extracellular electrolytes with solutions containing the chloride, sodium, and bicarbonate ions plus glucose. The incorporation of potassium greatly speeded recovery. It is important to use calcium salts in the management of diarrheal patients after the initial correction of acidosis. An exact analogy cannot be drawn here in the acidosis accompanying diabetic coma, but the importance of replacement of the phosphate ion in diabetic acidosis has been shown to produce a rise in the chloride level and carbon-dioxide-combining power of serum with retention of fluid in the vascular system, a more rapid clearance of mental state, and finally a significant decrease in the fatality rate. Early oral feedings are advocated, because a greater number of stools are formed, and there is more prompt and consistent weight gain.

Glycogen Storage Disease. Von Gierhe's disease or glycogen storage disease is a disorder in which excessive deposition of glycogen occurs in certain tissues. Two distinct types have been described, one involving the liver, the other the heart. Other organs that may be involved are skeletal muscles and kidneys, but rarely to such a degree as to cause marked clinical symptoms. Etiology is unknown. It is now generally recognized that the hepatic form of this condition is caused by an abnormality of the enzyme system which is essential for the mobilization of glycogen stored in the liver. The high-protein, low-carbohydrate diet as used on a two-year-old child reported here seemed to be the most adequate of those tried. Laboratory evidence supported the clinical impression that improvement was due to more sustained blood sugar levels and less rapid fall to hypoglycemic values.

THE MILBANK MEMORIAL FUND QUARTERLY

Vol. 27, October, 1949

*The statistical association between the diet record of ascorbic acid intake and the blood content of the vitamin in surveyed populations. P. Putnam, D. F. Milam, R. K. Anderson, W. J. Darby, and P. A. Mead.—p. 355.

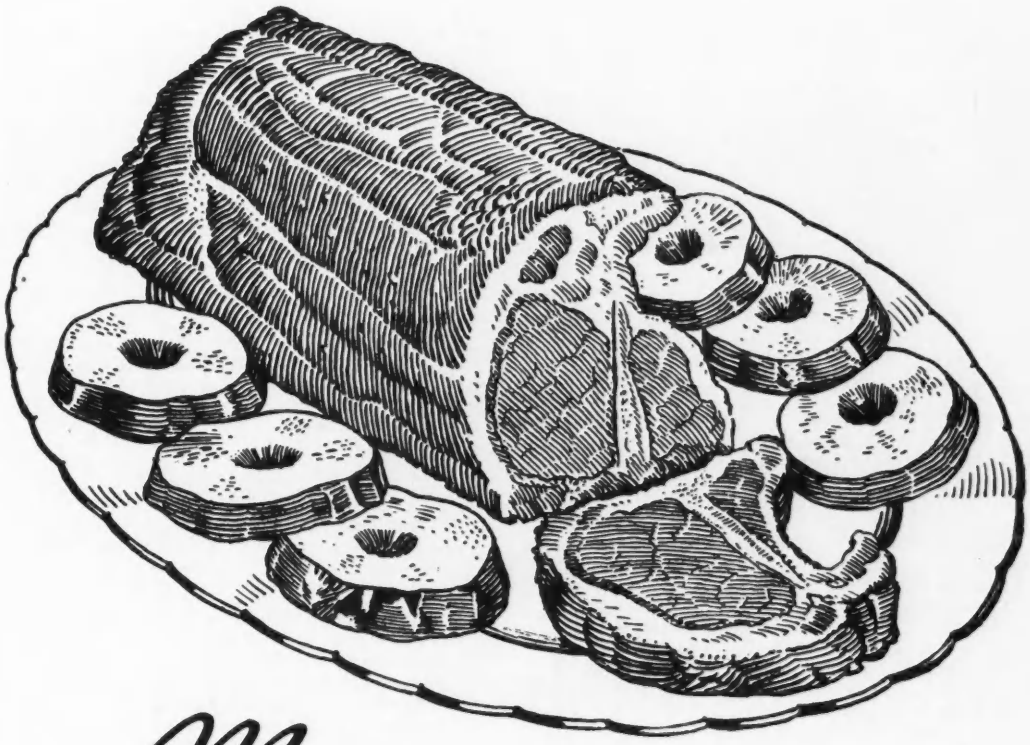
Ascorbic Acid Intake and Blood Content. A statistical analysis revealed a significant correlation between ascorbic acid intake, as measured by a seven-day dietary record, and the vitamin content of the blood. Higher blood levels on the average accompanied higher intakes, and vice versa.

Data were collected from 280 North Carolina families and from the Otomi Indians in Mexico. The analysis revealed the association of a state of unsaturation of ascorbic acid among the North Carolinians with low intakes. Fewer persons with such conditions were observed among the Otomi Indians. The Indians obtain 48 per cent of their ascorbic acid from pulque, the fermented juice of the century plant. The lower level of response (as noted by the blood content) to similar dosage among the adult North Carolinians is believed to have been due to low tissue reserves. The high blood ascorbic acid content among the Indians at low recorded intakes suggest that they had attained a tissue saturation that persisted at least during the period of survey.

SCIENCE

Vol. 110, December 16, 1949

*Growth failure in school children as associated with vitamin B_{12} deficiency—response to oral therapy. N. C. Wetzel, W. C. Fargo, I. H. Smith, and J. Helikson.—p. 651.



Meat...

Outstanding Value . . .
Outstanding Nutritional Benefits

Whether the pocketbook calls for economy or permits satisfaction of that urge for the fanciest cuts, meat gives your patients full value for their money. Every cut and kind of meat supplies, *in abundance*, these essential nutrients:

1. Biologically complete protein . . . the kind which satisfies the requirements for growth and which is needed daily for tissue maintenance, antibody formation, hemoglobin synthesis, and good physical condition.
2. The essential B complex vitamins, thiamine, riboflavin, and niacin.
3. Essential minerals, including iron in particular.

In addition to these tangible values, meat ranks exceptionally high not only in taste and palate appeal, but also in satiety value.

The instinctive choice of meat as man's favorite protein food has behind it sound nutritional justification.*

*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. *139*:897 (Apr. 2) 1949

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

Vol. 110, December 30, 1949

Prevention of dietary fatty livers by exposure to a cold environment. E. A. Sellen and R. W. You.—p. 713.

Growth Failure and Vitamin B_{12} Deficiency. For the most part, studies of vitamin B_{12} in man have been confined to its hematopoietic, clinical, and neurologic effects in disease. Information on its more general nutritional value has had to come from animal work in which growth could be experimentally held in check. In August, 1949, eleven children were selected to be given 10 mcg. crystalline vitamin B_{12} orally, daily. Three of these children were selected because of slow growth; the other eight were chosen at random from a group under regular care for varying degrees of malnutrition and in varying states of recovery. Five of the eleven subjects responded dramatically to administration of the vitamin, the effects being objectively measured by physique and level gains, using the Wetzel Grid technique. The noticeable physical changes were those of increased physical vigor, alertness, better general behavior, and a definite increase in appetite. The growth responses were equivalent to another 100 to 240 days of regular institutional care without the help of vitamin B_{12}.

AMERICAN RESTAURANT

Vol. 33, December, 1949

*Dressing up those fowl for the festive season. J. A. Cline.—p. 49.

The Modern Turkey. The modern turkey has changed so much that even its ancestors might not recognize it. Breeding has produced both larger and smaller birds. Small meaty birds, such as the Beltsville Small White and the Jersey Buff range in size from 9 to 15 lb. in the drawn toms and from 5½ to 9 lb. in the hens. Larger breeds include the White Holland, Black, Bourbon Red, and Narragansett. Ready to cook, the toms weigh 12 to 18 lb. and the hens 7½ to 11 lb. The giant of all is the Broad Breasted Bronze. Toms, ready to cook, weigh from 17 to 24 lb. although some toms reach the weight of 30 lb. A new feature in poultry buying is the ready-to-cook bird. Pinfeathers have been removed and the fowl is thoroughly cleaned. Although the price is higher than for the dressed birds, the average loss of 20 to 26 per cent in dressing is eliminated. Also to be considered is the vast amount of time saved by using the ready-to-cook fowl. Here is an opportunity for something new and delicious on your menu: split the young turkeys, just as you do broiler chickens, for broiling, or disjoint the 2½- to 5-lb. bird and fry it exactly as you would fry chicken.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 7, December, 1949

Letters of power. R. Cashman.—p. 5.
*The role of the dietitian. W. N. Wentworth.—p. 27.
*Menu planning. D. L. Ferrey.—p. 29.

College Residence Hall Dietitian. In a large university such as Indiana University, the dietitians are responsible for the complete operation of the dining room, planning of menus, ordering of food, supervision of employees (both full-time and student), and control of food costs. They may also be responsible for fancy dinner parties and refreshments for dances; repair, replacement, and maintenance of equipment and quarters; and teaching in the Home Economics Department.

Most schools at present use cafeteria service because of a shortage and high cost of labor (usually one full-time employee plus student help is necessary for 20.7 students fed), overcrowded conditions, class schedules, shortage of dishes, utensils, and high cost of food. One of the most important responsibilities is the dietitian's role as public relations authority, for in residence halls some students may stay for four or more years.

Menu Planning. Good menus are an effective means of controlling food, equipment, and personnel and, therefore, the cost and expenditure of the food service department. Points to be considered in menu planning for college students are: racial and religious background, age, food habits, education, and sex of patrons; color harmony, flavor, shape, and form of food; size of serving; temperature, texture, and availability of foods; sudden weather changes, use of more sensible foods; delivery both in frequency and time of day, storage facilities; equipment; personnel; and the budget.

Other problems of menu planning are special diets by doctor's prescription and menus for special occasions. The quality and quantity of the service offered is limited chiefly by the efficiency of the administration of the food service department concerned.

FOOD INDUSTRIES

Vol. 21, December, 1949

*Lard comeback promised by new quality process. F. E. Deatherage.—p. 53.
Browning of frozen apples prevented. K. G. Knight and P. C. Paul.—p. 63.
*USDA looks at food marketing. P. V. Cardon.—p. 74.
*Food plant equipment easily de-scaled.—p. 103.

New Lard Process. One of the food companies, interested in finding a way to obtain better use of lard, assigned The Ohio State University Research Foundation and the Department of Agricultural Biochemistry to investigate the possibilities of achieving a lard with qualities competitive with the hydrogenated vegetable oils. The outcome of this problem was the development of the new alkali rendering and refining process for producing a high-grade lard. This article, illustrated with diagrams, explains in detail the processes used. The merits of the alkali or other new rendering methods, compared to the older steam, open-kettle, and vacuum-rendering are presented.

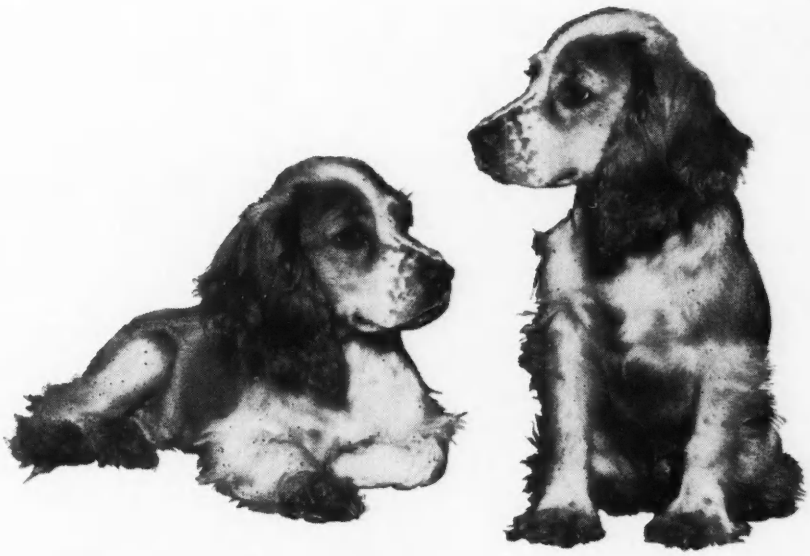
Food Distribution Studies. The Research and Marketing Act provides for research and investigation to find what has been done recently to help the country's marketing system to get farm products distributed to consumers in better condition and at less cost. This article discusses work completed or under way on pre-packaging, grades and standards, better equipment, transportation, market expansion, and consumer surveys and opinion. The examples given in this article show the wide range of work being done under the Research and Marketing Act.

De-scaling Plant Equipment. Wherever water is used as a heating or cooling medium in equipment, scale or deposit is gradually formed on the inside of the heat-transfer surfaces. As soon as a slowing down of heating or cooling is noted, it is time to consider de-scaling these inside surfaces. The treatment for the water side of the cooler may be set up as a circulating system with an old milk can hooked up to a pump to act as the source of supply. Circulation of a 25 per cent solution of inhibited muriatic acid should be maintained at least 30 min. After this treatment, the system should be drained and flushed first with water and then with an alkaline powder solution to neutralize any acid remaining. The amount of scale will depend upon water hardness, length of time equipment is used, and the processing temperature. This method of de-scaling may be applied to other equipment, such as pasteurizers, coil machines, and washers.

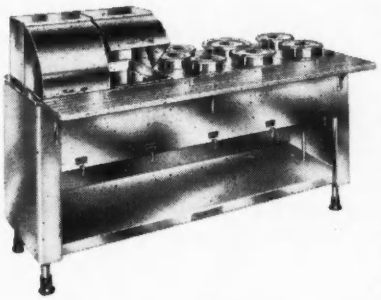
HOSPITAL MANAGEMENT

Vol. 68, December, 1949

*Food cost control as it concerns dietitians, administrators, accountants. H. T. Maschel.—p. 76.



they may look alike... but only ONE is a champion



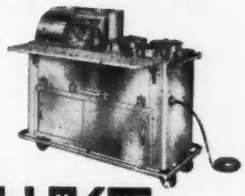
Champions aren't measured by looks, alone. It's the *inside* story, the background and performance that count.

In food warmers, the making of a champion starts years before the first tool is used in its actual construction.

The experience gained in over 45 years in the food service field went into the planning of the THURMADUKE Sanitary Waterless Food Warmer. That's why THURMADUKE has always been first with the finest: *Sectional Heat Control* to keep the food in each section at the proper temperature, *All Welded Steel Construction* for long, trouble-free life, *efficient* and *permanent insulation* to cut heat loss and operating costs, a *beautiful yet practical body design* for better appearance and easier cleaning. A combination of expert engineering, quality materials and outstanding features that you expect in a champion.

Your THURMADUKE Dealer invites you to inspect and compare THURMADUKE with any other food warmer before you buy. A fair comparison will show you why THURMADUKE likes to be compared.

ALL THURMADUKE MODELS Approved by the Underwriters' Laboratories and American Gas Ass'n.



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Food Cost Control. Reviewed here are the principal functions of food cost accounting. They are presented under ten points which are discussed in detail. Stress is placed on food inventories, recording of market quotations, recording of quantity and grade of foodstuffs received, matching quotations with actual invoices, the requisition system, and transfers between kitchens. Further attention is given to record keeping, establishment of meal cost, daily reports, and pre-cost control.

HOSPITALS

Vol. 23, December, 1949

*These are trends that affect food service planning. R. Dickie.—p. 68.
*Plastic tableware—a survey of acceptance by hospitals. F. D. Carr.—p. 85.

Trends Affecting Food Service Planning. Changes in the pattern for planning the layout of the food service department have occurred because of rising labor costs and improvements in methods of food preparation and preservation. The following general trends are discussed: centralization of all food production, shifting personnel from one peak production area to another, the use of freezing and fast cooking equipment, equipment design as related to sanitation, and other equipment improvements.

Plastic Tableware. A sampling survey of plastic tableware has recently been completed by the American Hospital Association's Committee on Purchasing, Simplification and Standardization. This survey showed that the new, heavy-duty type plastic tableware is being used in about 25 per cent of the hospitals. Questionnaires were sent to five hundred hospitals. The detailed results are presented, and the advantages and disadvantages of plastic dishes are listed.

INSTITUTIONS MAGAZINE

Vol. 25, December, 1949

*Time, motion economy offers answer to increasing labor costs.—p. 1.
*Pre-dispose food service success with pre-cost system.—p. 2.

Time and Motion Economy. Methods of increasing production and reducing labor costs as practiced in ten institutions, including college food service units, a school cafeteria, a hospital, commercial restaurants, and hotels, are presented. In summary, the recommendations included the following: (a) careful analysis and time study of the work to be done; (b) well-trained supervisors who have the ability to teach; (c) careful education and supervision of employees; (d) teaching employees more than one job, the principles of time and motion, cooperation, and teamwork; (e) scheduling workers to do advanced preparation and to stagger work; (f) installation of time-saving equipment; (g) checking proper placement of equipment and best utilization of space; and (h) keeping equipment properly maintained.

Food Service and a Pre-Cost System. A production order or schedule and a pre-costing sheet converted into quantities for preparation gives the kitchen manager a production program to guide him in quantity preparation. If costs are to be pre-controlled, standardized servings must be adopted as well as standardized recipe formulas. Staples and perishables are requisitioned on the basis of actual quantities called for in the production order. All food is bought by definite specifications. Tests are made to determine these specifications.

JOURNAL OF HOME ECONOMICS

Vol. 41, December, 1949

*Organizing a university's food service. C. Ricker.—p. 557.
*Organizing a school lunch program. G. E. Hochmuth and B. B. West.—p. 559.

University Food Service. Any university food service stands between a home and a commercial enterprise. It must serve good-tasting, balanced meals and at the same time work with a budget. Food service activities come under the following headings: menu planning, purchasing, and the social and educational aspects of the service. Each has several pegs on which the organization is hung. Menu planning includes nutritional needs; color, texture, flavor, and appearance; variety; group tastes; preparation time, cooking, and storage space; personnel and equipment; and budget. Purchasing procedures and forms include: specifications, purchase orders, inspection of food deliveries for quality and quantity, receiving reports, inventories, payment orders, and the financial report. The education and social aspects are the end results. Anything which gives quiet and slows the tempo at meal time helps, such as sound proofing, table linen, and candlelight. Menu items which slow the tempo of the meal should be included, such as melba toast and celery which must be chewed. Changing food habits at college level is difficult. New foods may be introduced by combining with tried favorites. Plate service is more effective than family style. The best way to change food habits is to serve food that tastes good.

Centralized School Lunch Program. Modern school lunchrooms have two major objectives: promoting the health and social development of the student and providing nutritious food at a minimum cost. A school lunchroom system should work as a unit under one head to best accomplish these objectives. This makes possible a long-term program of health and social education, equalized school feeding, quantity purchasing, and the ability to provide each child with a lunch, regardless of ability to pay.

The data obtained from check lists from forty-five school lunch programs showed that forty-one were centrally controlled and three partly centralized. When a school lunch program is operated on a nonprofit basis, its purpose is educational, and the expenses are paid from lunchroom receipts and board of education funds. Thirty-eight schools reported raw food and labor costs; food costs averaged 61.8 per cent and labor costs 30.9 per cent. Suggested policies to be followed in organizing into a centralized program are given.

THE NATION'S SCHOOLS

Vol. 45, January, 1950

*Food service in the Philippines. F. F. Negado.—p. 64.
S.F.S.A. speakers say school lunch aids general nutrition.—p. 65.
Lunchroom philosophy.—p. 65.
What's new for schools. B. Covert.—p. 97.

School Food Service. After the liberation of the Philippines, there was a great need for cafeteria service in the schools in Manila. To accomplish this, home economics supervisors and two of the Arellano High School home economics teachers gave utensils and equipment, even money, for purchasing food materials and reference books. Since many departments of the Philippine Normal School were destroyed, the physics laboratory was remodeled into the kitchen, and the cafeteria doubled as a cafeteria-management course in the home economics curriculum to train students in the proper selection and preparation of simple, economical, and healthful everyday meals. At present, the Philippine Normal School cafeteria serves more than 3000 people, including students, employees, faculty, and office employees.

PERSONNEL JOURNAL

Vol. 38, December, 1949

*Training which modified foremen's behavior. W. Osterberg.—p. 239.
*Grievances and the new supervisor.—p. 248.
*Job evaluation—a discussion. E. N. Hay.—p. 262.
*Prejudices in hiring. M. B. Mitchell.—p. 265.

CHIQUITA BANANA SAYS:

For two great foods in one

BANANA MILK SHAKE

Easy to make

For milk shakes—bananas fully ripe flecked with brown.

How to make BANANA MILK SHAKE

1 fully ripe banana **1 cup (8 oz.) COLD milk**

Peel banana. Slice or break into container of an electric mixer. Add milk and mix until creamy. Serve immediately. Makes 1 large drink (10 to 12 ounces) or 2 medium-sized drinks (5 to 6 ounces each).

When using a mixer which does not cut up and crush fruit, mash the banana before placing into container of mixer.

For a COLDER drink: Add about 2 tablespoons of crushed ice before mixing.

For a RICHER, SWEETER drink: Add about 2 tablespoons of ice cream before mixing.

Banana Milk Shake separates when allowed to stand...therefore serve immediately.

Banana Milk Shake is a "pep restorer"...good for everyone. It is of special value in post-operative and convalescent diets. The Banana Milk Shake contains approximately 260 calories.

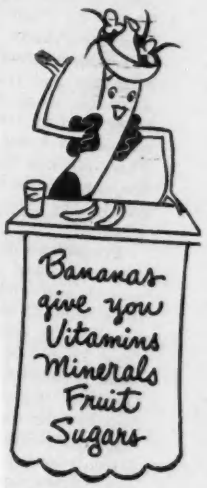
VARIATIONS

Banana Egg Nog: Before mixing Banana Milk Shake, add 1 egg.

Banana Malted Milk Shake: Before mixing Banana Milk Shake, add 2 to 3 tablespoons (½ to ¾ ounce) malted milk powder.

Banana Chocolate Milk Shake: Before mixing Banana Milk Shake, add 1 to 4 tablespoons (½ to 2 ounces) chocolate syrup.

Easy to take



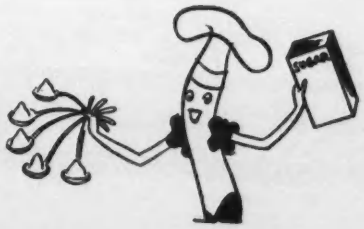
Bananas give you Vitamins Minerals Fruit Sugars

Good to drink

USE FULLY RIPE BANANAS ... PEEL WELL FLECKED WITH BROWN

Home Economics Dept., UNITED FRUIT COMPANY, Pier 3, N. R., New York 6, N. N.

...and don't forget—5 teaspoons of fruit sugar in every ripe banana



For bland diets, fruit diets, high carbohydrate diets—Bananas

Training Foremen. Training of foremen is successful only insofar as it improves the foremen's methods of dealing with employees. The major block to progress through a training program is the tendency for a foreman to develop a negative attitude which causes him to reject proposed principles or techniques on any grounds that can be rationalized to justify his refusal. An opportunity to deal with the great problem of uncovering impeding negative attitudes was afforded the author when a training program was given for pipeline foremen in an oil company. Conferences extended over seven weeks, with seven week-long meetings of twelve to fifteen men each. Time was devoted to human relations, history, policies, costs, legislation, and future plans. Many of the obstacles discovered at the conference are discussed in the article. This is followed by a presentation in detail of the procedure after corrections, the development of skill in human relations, an analysis of questionnaires, remarks and letters of men, and the importance of clearing resistances, doubts, and negative attitudes before action can take place in conferences and training programs.

New Supervisors and Issues. This article is a collection of pointers and suggestions to help newly-made supervisors acquire a deeper appreciation and skill in contending with issues or grievances. Whether the issues are real or imaginary, to the asker's thinking the problem is very important and the supervisor is responsible for giving the matter attention. Listed are eighteen pointers or hints to make the transition from an employee responsible for his own work to the supervisor responsible for the work of others less difficult. Some of these practical hints are: (a) Never forget that you are now a management, or company representative. (b) It is your duty to close out at your level as many issues as you possibly can. (c) Answer all issues as soon as possible. (d) Keep all discussions confined to the point of issue. (e) Be matter-of-fact in your dealings on all issues. (f) "Sell" your company to all employees under your supervision.

Job Evaluation. Job evaluation is the systematic analysis of duties and requirements of jobs as a basis for setting equitable wage and salary rates. Since job evaluation is being used by over half of all the industrial and commercial companies in the U. S., this subject deserves detailed study. This article is the first of a series of discussions reviewing the characteristics of job evaluation procedures and comparing the Point Method with the Factor Comparison Method.

Prejudices in Hiring. Since we all have prejudices, it is important that interviewers hiring employees remember to analyze and question the reason why one person is preferred to another. If the interviewer finds that he was attracted or repulsed by something in the applicant's dress or appearance, reconsideration of the more fundamental characteristics is necessary before a final decision can be fairly made. One way to learn more facts from an applicant is to ask him to talk about someone else, for instance, his former employer or the hobbies his wife has. This will indicate to a great extent what type of person he is, whether his wife can remain interested emotionally and socially during his absence on a business trip if he is a salesman, and also his attitude toward his previous job. An interviewer must be aware of his own prejudices and guard against having them influence him adversely in making a final industrial employee selection.

QUICK FROZEN FOODS

December, 1949

•How 1949 sales volume compares with 1948.—p. 35.

1949 Sales Volume. The sales volume for 1949 on all types of frozen foods—fruits, vegetables, concentrates, sea foods, meats, poultry, and specialites—showed marked increase over last year. Distributors to both retail and institutional outlets reported gains in volume as follows: 12 per cent gain on meats; 295 per cent gain on concentrates; 21 per cent gain on fruits; an increase of 31 per cent on vegetables; 26 per cent increase on sea foods; 27 per cent gain on poultry; and an increase of 35 per cent on specialties. Among vegetables, Lima beans showed the greatest gain. Strawberries accounted for the largest increased volume of fruit. Fish fillets and shrimp showed the largest volume of sales of sea food. In poultry items, fryers showed the largest gain. Among specialties, distributors reported gains on baked goods.

RESTAURANT MANAGEMENT

Vol. 65, December, 1949

•How we meet—and beat—local competition from home-cooked meals. R. Majeroni.—p. 27.
•Equipment maintenance manuals. A. H. Clawson.—p. 32.
•Stimulating late supper trade. M. L. Casteen.—p. 36.
Service—but fast! G. Page.—p. 38.

Walking Meals. A restaurant chain in Erie, Pennsylvania, has created new business through the development of "walking meals." A sturdy paper box and standard containers are easily assembled to form a compact unit which will keep food warm for several hours and can be assembled in a variety of ways, so that the customer may take with him the same meal he would choose in the restaurant. Although the container was not designed for any particular meal, it lends itself best to such well-known, familiar dishes as fried chicken and steak. Any item on the daily menu is available with this service which has proved popular with various community groups, late office workers, and travelers.

Equipment Maintenance Charts. The equipment manual for December describes methods of cleaning a dough divider.

Late Supper Trade. The selection of items for a late supper menu requires much study. Popular items are generally breakfast dishes, such as eggs and bacon; hearty soups with hot rolls; or casserole dishes as served for light luncheon entrées. Until the restaurant manager learns what his customers want, it is wise to feature different kinds of dishes for popularity rating. Some of the many suggestions included in this article are: creamed chicken or creamed tuna and mushrooms served on hot waffles, scrambled eggs with grilled Canadian bacon, cheese tray with olives and radish roses accompanied by assorted crackers or rye bread, chile con carni, fresh fruit bowl with bread and butter.

WHAT'S NEW IN HOME ECONOMICS

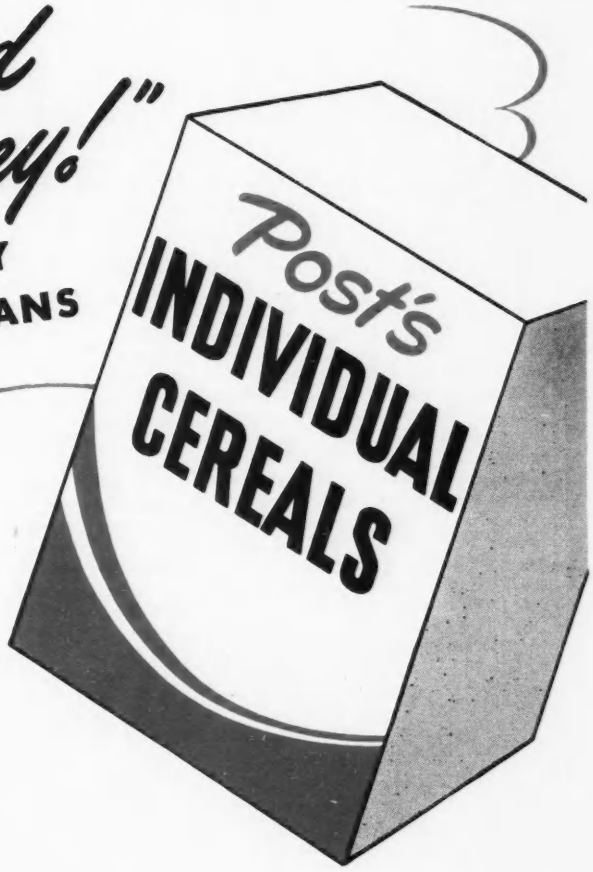
Vol. 14, December, 1949

Modern school laboratories equipped with all types of utensils. A. C. Ludwig.—p. 20.
•Molasses, the tangy sweetner. E. A. Wood.—p. 26.

Molasses, the Tangy Sweetner. For generations molasses has been used as a tangy sweetner in gingerbread, cookies, Indian pudding, baked beans, brown bread, and taffy. In learning to use molasses in recipes, students need to know its special properties, i.e., comparative sweetness, moisture, and leavening power. Recipes need to be developed for its use in quick method cakes as well as the conventional type. It may be used for baked apples, stewed fruits, pie fillings, frozen desserts, dessert sauces, candies, and many other foods. Because of its invert sugar content, molasses helps prevent the formation of large sugar crystals in frostings and candy, and large crystals in frozen desserts. The history of molasses is given, and the different types of molasses are described.

"Serve 'em and Save Money!"

ADVISE THRIFTY HOSPITAL DIETITIANS



Post's Cereals cut food costs!

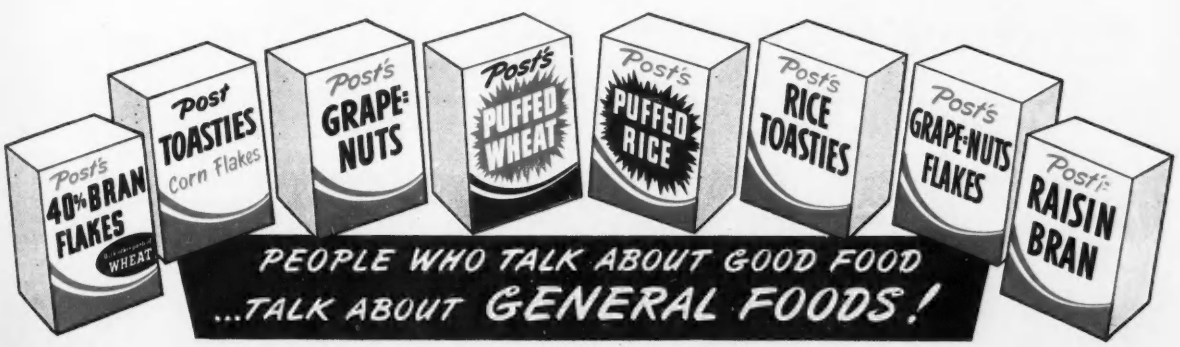
Variety! Cereal for every taste!

Patients say they're fresh, nourishing!

Packed with premium coupons for you!

● Serve Post's Individual Cereals to your patients and employees . and benefit *in many ways*. First, you save money because the 1-oz. package can be served again, if unopened. Second, you offer good, nourishing cereals because Post's are safely cellophane-wrapped. Third, you provide pleasant variety because there is a cereal for every taste. And you benefit personally . . . because Post's Individual Cereals, like almost all General Foods institution products, are packed with premium coupons. Write for free Premium Catalog, showing gifts for home, office, kitchen. General Foods Premium Dept., Battle Creek, Michigan.

POST'S *Individual* CEREALS



PEOPLE WHO TALK ABOUT GOOD FOOD ...TALK ABOUT GENERAL FOODS!

News Notes

Workshop on Materials for Nutrition Education. At the University of North Carolina, the School of Public Health and its Department of Nutrition, of which Dr. A. Hughes Bryan is Director, offered a Workshop on Materials for Nutrition Education which began on November 28, 1949, and lasted for two weeks. Ten nutritionists from state and territorial health departments attended. The consultants were recruited from the University of North Carolina. the State College at Raleigh, the Health Publications Institute, and the Nutrition Division of the State Board of Health. The staffs of the Communication Center and the Art Department of the University offered the nutritionists a new and lively approach to the preparation of materials for nutrition education. Three workshop groups concentrated on the preparation of a radio script, a filmstrip, and a pamphlet in the form of a comic book. During the evening session, the radio script was produced and recorded for transcription at the Communication Center by their students and staff. Witnessing the procedure gave the nutritionists a vivid idea of what makes or mars a good radio script. The most common criticism of the workshop by the participants was that it should have been planned for three instead of two weeks. They all agreed that working with masters in the field of audio-visual education gave them a new outlook on the problem of producing educational materials.

Workshop for Dietitians in Kansas. The Kansas Dietetic Association and the Nutrition Service, University of Kansas Medical Center jointly sponsored a Workshop for Dietitians on February 3 and 4. The program was planned to include ample time for a workshop procedure with discussion groups of eight people. Following the discussion period, a summary period was held at each session to give members of each group a chance to share in the thinking of the other groups and to ask questions of the leaders.

The morning program on the first day was devoted to the topic of personnel relations. Dr. Ira Gordon, Counseling Bureau, Kansas State College, acted as the leader.

The subject of the afternoon session was "Motion and Time Economy in Institution Food Service." The leaders were Mary Smull, President of the Kansas Dietetic Association and Professor of Institution Management, Kansas State College, and Ronald Wishart, Instructor in Shop Practice, Kansas State College. Miss Smull and Mr. Wishart have been pioneering in adapting industrial studies of motion and time economy to the use of food service equipment, and their presentation included pictures from their studies.

A banquet was held in the evening, at which Dr. Lillian Storms Coover, President-Elect of A.D.A., talked on "You and Your Profession." Dr. Coover was a guest throughout the two days of the workshop.

On the second day, Virginia Toews, Director of Nutrition Education, and other members of the dietary staff of the University of Kansas Medical Center discussed the new method of planning diabetic diets proposed by the American Dietetic Association, the American Diabetes Association, and the U. S. Public Health Service. All workshop participants were given an opportunity to practice writing such menus.

Conference on Food Protection. A new organization to provide technical counsel on the utilization of new materials in producing and processing foods was considered at a conference in Washington, December 29. The conference was called by the Food and Nutrition Board, National Research Council, to bring together representative viewpoints of government, agriculture, the food and chemical industry, and public health. Among the subjects discussed were the use of newer chemicals in the production of an adequate food supply, the introduction of functional ingredients in food processing, and the need for more knowledge in the application of these newer aids in agriculture and food technology.

A committee is to be appointed to complete organizational and operation plans for approval of various interested groups. The chairman, Dr. H. E. Longenecker, emphasized the desirability of cooperative action by industrial, governmental, and other research organizations in providing the scientific guidance required for protection of the food supply with regard to both adequacy and safety. It is anticipated that food producers and processors, the chemical industries, and various professional organizations will be invited to participate jointly in this new activity.

Cook County Interns Graduate. On January 31, a dinner and graduation exercises for four dietetic interns were held at the Cook County School of Nursing, Chicago. The theme, "Looking Through Rose Colored Glasses," was carried out in the program, which included talks on "The Year's Internship in Focus," "Clear Vision," "Look to a Rosy Future," and "Mid-Century Forecast in Dietetics." Millie E. Kalsem, Director of the Dietary Department, Cook County School of Nursing and Chief Executive Dietitian, Cook County Hospital, presented certificates and pins

Army Announcements Concerning Personnel

The Department of the Army has released the following official list of names of dietitians in the Women's Medical Specialists Corps who have been separated from service:

2nd Lt. Mary Jo Andrews, R-2544, 409 E. 30th St., Austin, Tex.
2nd Lt. Ann K. Burke, R-2530, Box 20, Student Detachment, Williams AFB, Chandler, Ariz.
1st Lt. Caroline Fuller, R-2206, Mountville, S. C.
1st Lt. Catherine I. Hartt, R-54, Rawlins, Wyo.
Capt. Freda Z. Katz, R-1249, 2716 Arctic Ave., Atlantic City, N. J.
1st Lt. Nancy Orleman, R-2497, 9600 N. Miami Ave., Miami, Fla.
Capt. Leah, E. Teale, R-10034, Ft. Lewis, Wash.

The following dietitians have received initial appointments in the WMSC Reserve for Extended Active Duty:

2nd Lt. Edith J. Herring, B-2571
2nd Lt. Jeanne Poehlmann, R-2572

The following promotions in the WMSC had been made:

Marian M. Poitrast, R-10060, to Permanent 1st Lt.
Annie Ruth Lanford, R-2474, to Temporary 1st Lt.
Solveig Peterson, R-10048, to Permanent Capt.

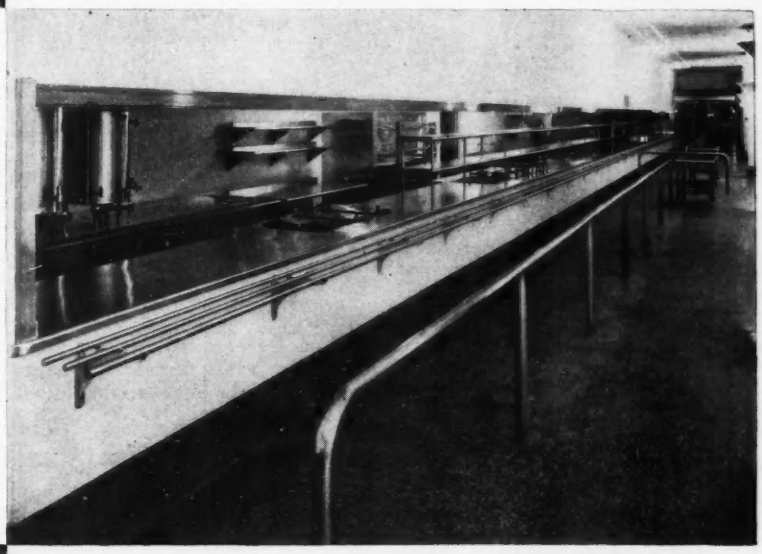
Rebecca L. William, Ft. Bragg, N. C., has been appointed in the regular Army in the grade of 2nd Lt.

ideas from **PROMINENT FOOD SERVICE INSTALLATIONS**

Metropolitan Life Insurance Company uses Blickman-Built Equipment to simplify cleaning and speed service

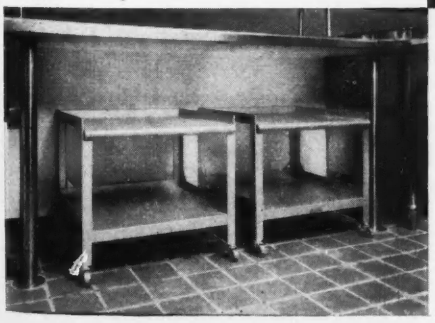
● This great insurance company feeds thousands of employees daily at the Home Office Building in New York City. To this operation it brings the same careful study applied to all its far-flung activities. Blickman-Built stainless steel equipment in kitchen, pantries and cafeteria was chosen because of its long service life and trouble-free performance. The entire installation was planned to keep maintenance costs down, to simplify cleaning. Note, for instance, the method of mounting sinks on wall, eliminating leg obstructions below for easier cleaning. Examine also the portable serving shelves which speed service and reduce waste motion.

FOR SIMPLIFIED CLEANING—Round corner stainless steel pantry sinks and table. Note the manner in which sinks are attached to wall by means of stainless steel brackets. This eliminates leg obstructions, speeds cleaning. Open space is left between sink and wall for easy access for cleaning.



DURABLE STAINLESS STEEL CONSTRUCTION—View of stainless steel cafeteria counter and back bar equipment. Fully-welded construction. Counter tops are sound-deadened. Guard rails and supports have welded joints, with large radius fillets ground smooth and polished. Cleaning is quick and easy.

WASTE MOTION ELIMINATED—Movable shelf units are placed underneath work counter. These replace the customary fixed shelving. Dishes or other supplies are loaded on them and wheeled directly to serving counter, saving time and labor in re-handling.



From every viewpoint, Blickman food service equipment represents *value* in terms of durability, sanitation and economical operation. Whether it's a single unit or a complete installation—it will pay you to consider "Blickman-Built"—the finest made.

Send for illustrated folder describing Blickman-Built Food Service Equipment—available in single units or complete installations.

S. Blickman, Inc., 4003 Gregory Ave., Weehawken, N. J.

Blickman-Built
FOOD SERVICE EQUIPMENT
EST 1889

to the following dietitians: Eleanor Ghinder, Bowling Green State University; Elinor Koon, Georgia State College for Women; Teruko Menekiyo Umemoto, Whittier College; and Mary Agnes Williams, Mundelein College.

New Director, American College of Surgeons. Major General Paul R. Hawley became Director of the American College of Surgeons on March 1. General Hawley's experience includes service with the Army from 1916 until 1946. In 1945 he became Chief Medical Director, Veterans Administration. In 1948 he was appointed Chief Executive Officer of the Blue Cross and Blue Shield Commissions.

Dr. Malcolm T. MacEachern, as Director Emeritus of the American College of Surgeons, will devote his major attention to continued supervision of the program of hospital standardization, including application of the Point Rating System.

Air Force WMSC Swears in First Civilian Dietitian. In January, the first civilian to be granted a direct commission in the Women's Medical Specialist Corps since the establishment of a separate Air Force Medical Service was sworn in. She is Filomena R. Fusco, Troy, New York. On completion of indoctrination training at Fort Sam Houston, Texas, Lt. Fusco will report for duty at the Air Force Medical Detachment, Brooke Army Medical Center, San Antonio, Texas.

NEW PLAN!

LOWERS COST-PER-SERVING OF SOUPS FOR LOW SODIUM DIETS

After you satisfy the needs of your salt restricted and low sodium diets, add salt to taste and serve this soup to your other patients. Your average cost comes down as low as 1½ cents per serving.

You save money when you buy delicious Bernard soups for low sodium diets instead of paying $1.00 per pound for salt (often up to 50% by weight) contained in regular soups. You further cut cost per serving by adding your own salt and serving patients not requiring low sodium foods.

Our soups and our other foods for low sodium diets are noted for appetizing flavor and nourishing goodness. That is why you can use them for general feeding. Only the salt is left out. The soups are especially adaptable used in gravies and as flavoring for meat, since *you* can control the amount of salt used.

The following is a partial list of Bernard Quality Products, best and most economical to use. See how your patients enjoy our rich foods with low sodium content and see how you save by adding your own salt for general use.

NO SALT ADDED
Chicken Soup Base
Beef Soup Base
Mushroom Soup Base (Meatless)
Celery Soup Base (Meatless)
Vegetable Bouillon (Meatless)
Pea Soup (Meatless)
Jellied Consomme
Creme Pudding Desserts

NO SUGAR ADDED
Gelatin Desserts
Pudding Desserts
And Other Special Diet Foods.

Write for complete price list and dietary breakdown

BERNARD FOOD INDUSTRIES, INC.
MAIN PLANT: 559 W. FULTON STREET, CHICAGO 6, ILL.
BOSTON, MASS. DETROIT, MICH. WASHINGTON, D. C. MIAMI, FLA.
MINNEAPOLIS, MINN. LOS ANGELES, CALIF.

Institutions Contest Judge. An announcement has been made that one of the judges for the fourth annual Food Service Contest conducted by *Institutions* Magazine will be Winifred Howard Erickson, A.D.A. Treasurer and Director of Dietetics, Ancker Hospital, St. Paul.

Nutrition Experts Receive Cuban Awards. Drs. Tom D. Spies and Robert R. Williams on January 23 were presented with the Orden de Carlos Manuel de Cespedes decoration, the highest award of the Cuban government. Dr. Spies, Chairman, Department of Nutrition and Metabolism, Northwestern University Medical School, received this honor for his contributions to the field of nutritional deficiency diseases. He was the first to employ folic acid to combat macrocytic anemias in human beings and to use folic acid and vitamin B_{12} in tropical sprue. He first achieved fame with his use of niacin in the treatment of pellagra.

Dr. Williams is best known for his work in isolating thiamine, analyzing its structure, and synthesizing it so that it could be manufactured by chemical companies. Since 1945 he has devoted his full time without pay to combating malnutrition anywhere in the world.

The Orden de Carlos Manuel de Cespedes decoration, created in 1926 in honor of the first Cuban president, is given to a Cuban or a foreigner who has done outstanding work of a humanitarian nature for the Cuban people.

New Improved Internship. An administrative dietetic internship at Indiana University Residence Halls, Bloomington, Indiana, was approved by the Executive Board at the mid-year meeting on February 25, 1950. Martha McBride is the Director of the internship, and applications should be addressed to her.

Summer Work at Purdue. A course in school lunchroom management will be offered this summer at Purdue University, Lafayette, Indiana, from June 19 to 24. The work will be conducted on a problem basis and students will have an opportunity to place emphasis on their own area of interest. One credit will be earned for graduate or undergraduate standing.

Following this course, a non-credit work conference will be conducted from June 26, to July 1. Managers, cooks, sponsors, and others interested in school lunch operation may enroll. Assisting the Purdue Department of Institution Management in conducting this conference will be consultants from various state and federal agencies as well as independent organizations.

Correction. In the December, 1949 issue of the JOURNAL on page 1030, the statement was made that Mary Swartz Rose, in 1937 became "the fifth president of the American Institute of Nutrition, the first, and to date, only woman to hold that office in this distinguished society." We have since learned that this statement was not correct, for in 1944, a second eminent woman scientist, Dr.

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Hall creamers are pure white inside and can be kept that way permanently with a minimum of cleaning and sterilizing. Made of heavy, fireproof china by an exclusive process, they are crazeproof, absorption-proof, and stainproof. Reasonable first cost and extreme durability make them the most economical creamers you can buy.

Write on company letterhead for Catalog 48, which lists almost 1,000 different Hall China items and contains a color chart of the 26 beautiful underglaze colors that are available.

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The World's Largest Manufacturer of Fireproof Cooking China

Shaping Hall China Cream Bottle

Hall Creamers are made in sizes ranging from individual to banquet service. Sugars are also available.

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FIREPROOF CHINA

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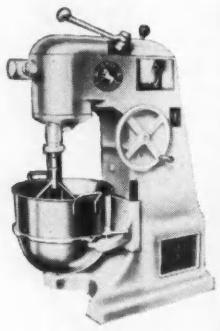
COLT AUTOSAN MIXERS

for Mixing, Whipping, Beating and Mashing

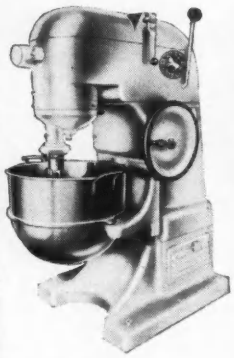
Here's a line of mixers you can truly depend on for a long life of rugged duty. Colt Autosan Mixers have been engineered by experts who have spent years in this specialized field and they are outstanding in modern styling, easy-to-clean enamel finish, and sturdy mechanism.

BENCH MODEL AN-20, 1/3 H.P.
Designed for the smaller kitchens, or to serve as an auxiliary to the larger machines. Three speeds.

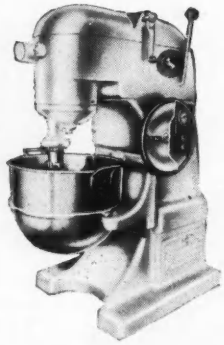
All Colt Autosan Mixers have the built-in quality and durability that have made the Colt Autosan Dishwashers famous. Such dependable features as multiple plate clutch and automotive type ball bearing transmission with alloy steel gears running in oil assure many years of trouble-free service. Auxiliary drive attachment is standard equipment on all models, and a full line of attachments is available. Ask for a demonstration through your regular restaurant equipment dealer. Colt's Manufacturing Co., Hartford 15, Connecticut.



VERTICAL MODEL
AR-60, 1 H.P.
For the average kitchen. Three speeds.



VERTICAL MODEL
AK-80, 2 H.P.
Designed for heavy duty, and to cover a wide range of mixing requirements. Four speeds.



VERTICAL MODEL
AK-110, 3 H.P.
Designed to meet heavy demands, and covers the full range of mixing requirements. Four speeds.

COLT AUTOSAN

DISHWASHING, SANITIZING, DRYING AND MIXING MACHINES

Icie Mach Hoobler, Director, Research Laboratory, Children's Fund of Michigan, served as President of the Institute of Nutrition.

Films for Meetings. A UNESCO film strip has been prepared which is based on an illustrated talk given by Louise Leonard Wright, member of the U. S. National Commission for UNESCO, at the National Conference on UNESCO last spring. It is composed of fifty-two photographs and charts and, with an explanatory script, will provide a program of about 40 min. It fits any 35-mm. film-strip projector and may be ordered from Ideas Interpreted, 908—20th St., N.W., Washington, D. C. The price is $3.

Another film which is available for showing at meetings is the National Restaurant Association's public relations movie, "America's Heritage of Hospitality." This is a full-color, 16 mm. sound film which requires 22 min. running time. It was shown at the A.D.A. convention in Denver last October and has already been shown at a number of state association meetings.

Booklet on Turkeys. The Poultry Branch, Production and Marketing Administration, U.S.D.A., has recently published a revised edition of "Grading Dressed Turkeys." In it are explained in detail the U. S. government's standards and grades for dressed turkeys. The booklet is liberally illustrated with photographs showing types of birds which meet government standards for A, B, and C quality, and the points which have qualified them for a particular class. The booklet is available from the Superintendent of Documents, Washington 25, D. C., for 10 cents.

Plentiful Foods. The Production and Marketing Administration, U.S.D.A., expects the following foods to be plentiful in March:

Fresh fruit and produce

Apples	Lettuce
Beets	Potatoes, Irish
Cabbage	Spinach
Carrots	

Meat, fish, and poultry

Chickens (broilers, fryers, and hens)
Fish (fresh and frozen)
Pork and pork products

Miscellaneous foods

Beans, dried	Eggs
Beans, Lima, canned	Peaches, canned
Corn, canned	Prunes, dried
Dairy products, manufactured	Raisins

Relation of Nutrition and Climate. The Quartermaster Food and Container Institute for the Armed Forces, Chicago, has published a critical review entitled *Nutrition and Resistance to Climatic Stress with Particular Reference to Man.* Written by Dr. H. H. Mitchell and Marjorie Edman, Division of Animal Nutrition, University of Illinois, the authors have cited more than seven hundred references in the bibliography. The major topics treated in this 112-page

Compare...

Meritene® VS. EGG NOG

as a between-meal nourishment for hospital and convalescent patients

more nutritive value...

Not advertised to the laity...

	*Egg Nog	MERITENE Milk Shake
Protein	12.5 Gm.	15.8 Gm.
Fat	12.8 Gm.	8.0 Gm.
Carbohydrate	16.2 Gm.	25.5 Gm.
Calcium	0.24 Gm.	0.5 Gm.
Phosphorus	0.27 Gm.	0.4 Gm.
Iron	1.8 mg.	4.4 mg.
Vitamin A	842 I.U.	1,745 I.U.
Thiamine HCl	0.16 mg.	0.7 mg.
Riboflavin	0.5 mg.	1.6 mg.
Niacin	0.17 mg.	6.4 mg.
Ascorbic Acid	4.0 mg.	26.4 mg.
Vitamin D	4 I.U.	150 I.U.
Calories	230	237

PLUS VALUES: A MERITENE Milk Shake supplies 26 per cent more protein and 144 per cent more iron than an egg nog, as well as generous quantities of vitamin C, and other vitamins and minerals.

lower cost

MERITENE Milk Shake costs 12.5% less—based on price of 25-lb. institutional size.

EASY TO PREPARE: Add 1 ounce (4 level tablespoonfuls) of MERITENE to 6 ounces of milk . . . beat, shake, or mix until smooth.

AVAILABLE: In 1-lb. cans, plain or chocolate flavor, retailing at $1.65 per lb. Also available in 5-lb. economy-size and 25-lb. hospital-size cans.

*Egg-nog nutritive values from Bowes, A. de P., and Church, C. F.: Food Values of Portions Commonly Used. Philadelphia, 1944; fifth edition.

The PROOF is in the TASTING and MERITENE, fortified whole-protein supplement, does taste good. Send for sample today.

THE DIETENE COMPANY -Dept. MD 30
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Please send me a free sample of MERITENE, the fortified whole-protein supplement, and descriptive literature.

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City.....Zone.....State.....

volume are the effect of climatic stress on nutrition and the effect of dietary modifications on tolerance to climatic stress. The principal types of environmental stress discussed are cold climate, hot climate, and altitude as they affect diet in man and laboratory animals.

Summary of Dutch Nutritional Rehabilitation. A two-volume summary of the experiences of the Dutch, British, Canadian, and U. S. medical and public health groups who were responsible for the nutritional rehabilitation of Western Netherlands during the war is now being distributed in this country. The printing of this report was made possible by the Netherlands Government. The report is titled *Malnutrition and Starvation in Western Netherlands*. In Part I is included information on the following main topics: food and health in Western Netherlands before liberation; preparation for relief; the last days before liberation; entry into Western Netherlands; results of investigations; and general conclusions. In Part II is published a collection of thirty-two appendices.

News of State Associations

Colorado Dietetic Association. The officers of the Colorado Dietetic Association for this year are: President, Mabelle V. Williams, Consulting Dietitian, Denver; President-Elect, Virginia Beal, Child Research Council, Colorado Medical Center, Denver; Secretary, Johanna Clymer Gates, Clinic Dietitian, Colorado Medical Center, Denver; and Treasurer, Evaline McNary, Colorado College, Colorado Springs.

The *Denver Dietetic Association's* officers are: President, Fern Stone, Mercy Hospital; and Secretary-Treasurer, Eileen Haxel Curley.

Georgia Dietetic Association. On December 6, the Augusta Dietetic Association held its monthly meeting at Oliver General Hospital. Dietitians who attended enjoyed a tour of the hospital's main kitchen and dining rooms.

Hawaii Dietetic Association. Some thirty-five members of the Hawaii Dietetic Association attended a Christmas party at the home of Vice-President Mary Lum. Refreshments prepared by Treasurer Elsie Boatman were enjoyed by all, and the evening ended with a grab-bag presided over by the "Hawaiian Santa Claus," Virginia Cooksey.

Illinois Dietetic Association. The Executive Board of the Illinois Dietetic Association has voted to make available to a student majoring in home economics in a college or university in Illinois the sum of $15 monthly during her internship. She must, however, take a dietetic internship in Illinois.

The feature of the January meeting on diet therapy of the *Chicago Dietetic Association* was a discussion of "The Child Diabetic." The guest speakers were Dr. Alvah Newcomb, Children's Memorial Hospital; Dr. Henry T. Ricketts, University of Chicago Clinics; and Dr. Alfred Solomon, psychiatrist. Dorothea F. Turner, Nutrition Clinic, University of Chicago, served as monitor for the panel. Highlights of the experiences with the summer camp for diabetic children sponsored by the Chicago Diabetes Association last summer were also given.

Kansas Dietetic Association. "How Do You Figure?" was the topic of a talk given by Mary Breed, Dietitian, University of Kansas Medical Center, to a Kansas City Y.W.C.A. class of women. The principles of a diet for obesity were explained. The Y.W.C.A. asked for a dietitian in response to a letter sent by the Public Relations Committee of the *Greater Kansas City Dietetic Association* which listed topics on which dietitians would be willing to speak.

Recent vocational guidance activities in Kansas have included talks on the value of a dietetic internship by dietitians and dietetic interns of Kansas City at the following university and colleges: University of Kansas, Lawrence; Kansas State College, Manhattan; St. Mary's College, Leavenworth; and Mt. St. Scholastica College, Atchison.

New Jersey Dietetic Association. The Professional Education Section of the New Jersey Dietetic Association was in charge of the January program held in Newark. Meredith Jones, Teaching Dietitian, New York Hospital, explained and demonstrated group dynamics. Such problems as program planning were discussed. A similar meeting in Trenton is planned for those who were unable to attend the Newark meeting. The Diet Therapy Section is planning the program for the April meeting, and in May, the Community Nutrition Section will sponsor a joint meeting with the New Jersey Home Economics Association and the New Jersey Nutrition Council.

As one of its projects this year, the Diet Therapy Section, at the request of the State Nutrition Committee of Welfare Agencies, is "setting up standards and prices of special diets." Eighty-two questionnaires were sent to hospitals in the state to determine the most widely used special diets, and from these a basic standard for these diets will be worked out.

The Professional Education Section in its vocational guidance program is advertising in high school papers and is receiving a number of requests for the A.D.A. vocational literature as a result.

Officers of the New Jersey Dietetic Association are: President, Elizabeth McHugh, American Red Cross, East Orange; President-Elect, Marie Monette, Englewood Hospital, Englewood; Vice-President, Janet Jardine, State Department of Education, Trenton; Secretary, Sonya Fast Gold, Beth Israel Hospital, Newark; and Treasurer, Gertrude Isserman, Beth Israel Hospital, Newark.

New York State Dietetic Association. The annual convention of the New York State Dietetic Association will be held in Buffalo at the Hotel Statler on April 27, 28, and 29. It is to be a joint meeting with the New York State Home Economics Association, and all dietitians

FOR THE
LOW
SALT
DIET

Cellu Canned Vegetables and Vegetable Purees. Packed Without Sugar, Salt or Other Seasoning.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

18 Popular Vegetables and Purees Available

For cardiac patients, and others on sodium-restricted and salt-restricted diets. Cellu Canned Vegetables and Cellu Purees are packed without any added seasoning—condiments are easily added if conditions permit. Use Cellu Canned Vegetables and Purees to add variety to restricted diets . . . Corn, Asparagus Tips, Peas, Stringless Beans, Pureed String Beans, Carrots, and Peas, and ten other favorites to choose from. Food values printed on the label for convenience in planning diet meals.

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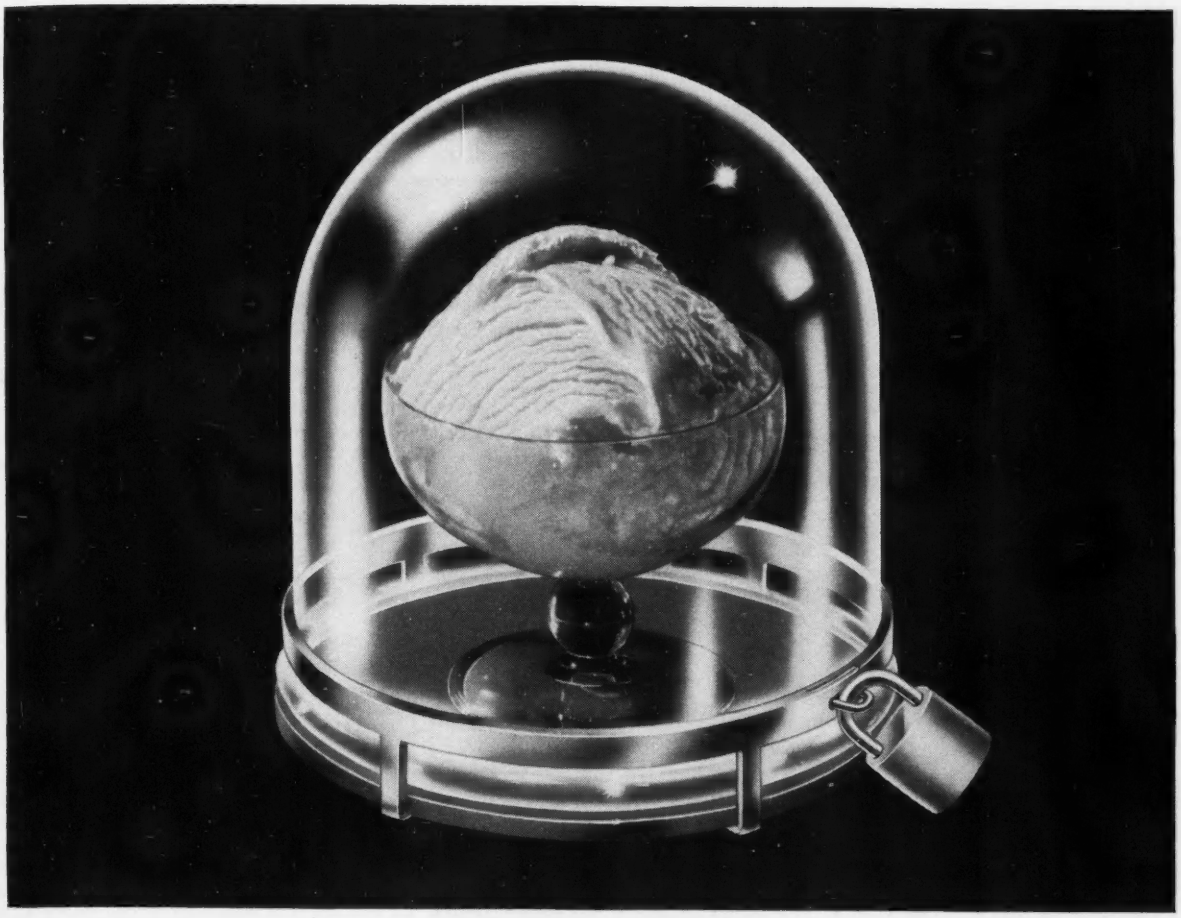

Nutrition Locked In The riboflavin in ice cream's ingredients is fully retained in the finished product

IT'S GOOD to know that riboflavin, so vital for growth in the young and for health in people of all ages, occurs abundantly in fresh milk and cream. It's also present in comparable amounts in ice cream . . . for the ice cream making process does not destroy the nutrient. Furthermore, analyses of ice cream after experimental storage periods show that ninety-five percent of the vitamin is still present even after storage for as long as seven months.*

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Thus research continues to reveal nutritional benefits to be derived from ice cream. Both those who plan diets, and those for whom they plan them, will be pleased that so popular a food as ice cream is so nourishing as well.

*Holmes, A. D., Kuzmeski, J. W. and Canavan, F. T. *Stability of vitamins in stored ice cream.* J. Am. Diet. Assn. 22:670 (Aug.) 1946.

**Everson, G., Wheeler, E., Walker, H. and Caulfield, W. J. *Availability of riboflavin of ice cream, peas and almonds judged by urinary excretion of the vitamin by women subjects.* J. Nutrition 35:209 (Feb.) 1948.

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and home economists in New York and nearby Canada are invited.

The *Hudson Valley Dietetic Association* met on January 9 at the New York State College for Teachers, Albany. The program on "Personnel Problems," took the form of a discussion, which was led by three teams of three members each.

In *Rochester*, the Dietetic Association held a joint meeting with the League of Nursing Education in January. Representatives of both groups participated in a panel discussion on "Dietary Care of the Patient in the Hospital and the Home." The purpose of the discussion was to give the picture of the dietary situation in Rochester, to point out existing problems, and to stimulate suggestions for solutions of these problems.

Ohio Dietetic Association. The annual convention of the Ohio Dietetic Association will be held in Cincinnati, April 28 and 29. The theme of the meeting will be "Food and Your Future." In planning the program, emphasis is being placed on new developments in the food field and the contribution which the dietitian's training enables her to make to the community.

Programs in local Ohio associations this winter have shown the effects of well rounded planning.

An early fall program of the *Cleveland Dietetic Association* featured a discussion on "Sanitation" by Enos B. Buchanan, Food and Drug Administration, Cleveland Division of Health. A December vocational guidance program was presented in cooperation with the Cleveland Home Economics Association. Guests were the vocational guidance directors and deans of women of high schools and colleges in the Cleveland area. Through the program, "Picture of Dietetics," the many fields open to dietitians were presented. In December, too, Cleveland dietitians participated in a panel discussion of "Holiday Menus for Diabetics" at the meeting of the Cleveland Diabetic League. At the dietitian's January meeting, E. N. Collins, M.D., Cleveland Clinic Foundation, discussed "Recent Trends in Ulcer Management." At a February dinner meeting, a panel discussion presented several viewpoints on "Is Business Knowledge Necessary?" High school girls are to be guests at the Cleveland group's March meeting, when the program will be on "The Dietitian at Work and Play."

The *Cincinnati Dietetic Association* heard Dr. I. Arthur Mirsky, Director, May Institute of Medical Research, Jewish Hospital, speak on "Psychosomatic Problems in Feeding" in January. The February program was presented by the dietetic interns of the Cincinnati hospitals. "Around America at Mealtime" was the topic chosen by the interns for a program designed to present some of the regional characteristics of American eating. The annual Food Parade, a program which Cincinnati dietitians request each year, is to be held in March. Members bring made-up samples (in generous size) of their favorite recipes. Tasting, evaluation, and discussion follow. The recipes will be compiled into booklets for the members. Quantity food production will be discussed at this meeting by Veronica Morrissey, Tea Room Manager, L. S. Ayres & Company, Indianapolis. In the interest of combining business with pleasure, the Cincinnati Association's Ways and Means Committee is planning a spring square dance for members and their friends.

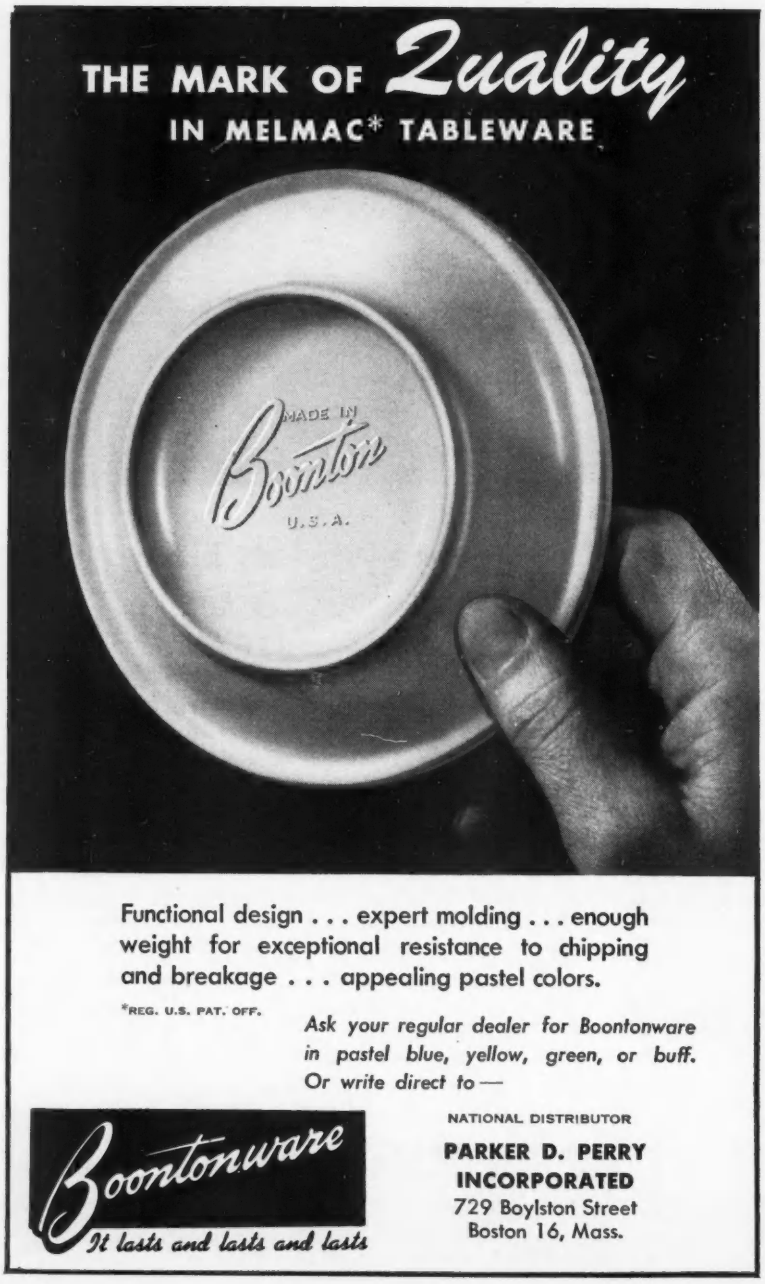
Several Ohio dietitians were among the 150 women who attended the January Workshop on "How to Write for Homemakers" given in Columbus by Lou Richardson and Genevieve Callahan. In three 2-hr. sessions, much useful information was given to the home economist who presents her material through newspapers, magazines, books, commercial recipe releases, radio, television, or speeches.

Oklahoma Dietetic Association. The spring meeting of the Oklahoma Dietetic Association will be held in Oklahoma City, March 24 and 25.

Oregon Dietetic Association. The annual meeting of the Oregon Dietetic Association was held February 11 in Salem. There was a professional meeting with speakers in the morning, and a workshop in the afternoon.

Pennsylvania Dietetic Association. The annual meeting of the Pennsylvania Dietetic Association will take place April 27 and 28 in Philadelphia.

The *Philadelphia Dietetic Association* in December was entertained by the Freihofer Baking Company. The pro-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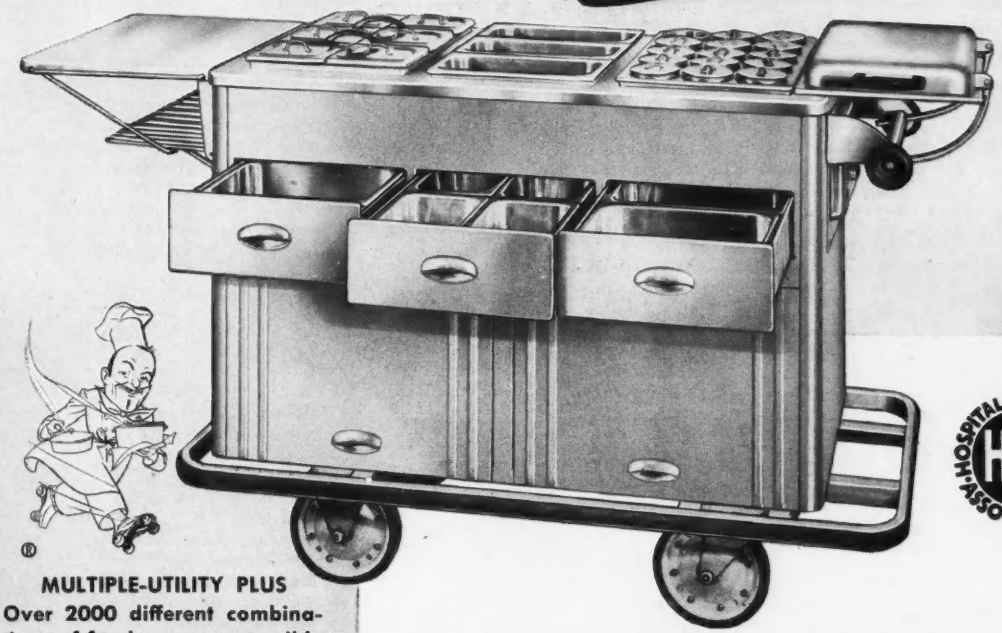

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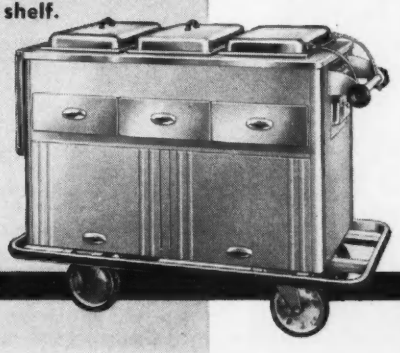

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gram included a tour of the plant, a demonstration of cake decorating, and an address by Earl Prevette, lecturer and author. In January, Philadelphia dietitians heard Amy G. Cowing, Educationist, Extension Service, U.S.D.A., talk on "How to Communicate Your Ideas in Writing." On February 9, the Diet Therapy Section started its third series of classes for diabetic patients, in cooperation with the Philadelphia Metabolic Association. Two classes will be held each month for three months. Each member of the Metabolic Association received a card of notification so that patients might be registered for the classes.

The *Pittsburgh Dietetic Association* is conducting a varied program of meetings this year. In September the topic was public relations. Dr. S. Orville Baker, English Department, Carnegie Institute of Technology, spoke on "Dietetics in Plain Talk." In October, the members were guests of the Equitable Gas Company, where a demonstration titled "Lady of Leisure in an All-Gas Home" was the feature. The Business and Professional Women's Club of Pittsburgh was invited to attend this meeting. At the November meeting, reports of the A.D.A. Denver convention were made, and in December, there was a Christmas party. The first program of the new year in January was featured by a discussion of dietary modifications for metabolic disturbances which require low-sodium diets.

At the October meeting of the *Northcast Pennsylvania Dietetic Association* reports were given of the A.D.A. convention by Audrey McDonald. In November, the Association met twice, the first meeting being a joint meeting with hospital administrators which was held in Wilkes-Barre. The program included a tour of the Percy Brown frozen food plant: The second November meeting was a card party held in Scranton. In December, Hilda Richards entertained the members by reading a Christmas story at the Association's holiday party.

The officers of the *Northwest Pennsylvania Dietetic Association* were given incorrectly in the January JOURNAL. The correct officers are: President, Betty A. Brehl, Butler Memorial Hospital, Butler; and Secretary, Margaret L. Henney, Oil City Hospital, Oil City.

South Carolina Dietetic Association. On January 7, the South Carolina Dietetic Association sponsored a Dietetic Institute to which all those in charge of dietary departments of hospitals and child-caring institutions in the state were invited. Margaret Freeman, Consultant Dietitian, State Board of Health, was in charge of the meeting, which was held in the Pearce-Young-Angel plant in Columbia.

The program included:

Slides on sanitation titled, "Our Health Is in Your Hands," by E. T. Ammons, Sanitary Engineering Division, State Board of Health.

"Intelligent Buying," by Roy Pearce, Vice-President, Pearce-Young-Angel plant.

A panel discussion on "Supervision of Employees and Job Analyses" by Emily Lee and Anna Watson, VA Hospital, and Marjory Stevenson, Greenville General Hospital.

"Planning Menus" by Margaret Freeman, Consultant Dietitian, State Board of Health.

Thirty-nine people attended the Institute, including several institution management students from Winthrop College. The response from the audience indicated that the topics were of interest. Some presented their own problems and contributed enthusiastically to the discussions. It was suggested that menus be exchanged among the various institutions, and Miss Freeman agreed to collect and distribute them, along with follow-up material on the topics that were discussed.

Virginia Dietetic Association. On October 29, the Virginia Dietetic Association met in Richmond, with approximately sixty members present. On Friday, the following papers were given:

"Some Recent Observations on Food in Europe," by Marguerite Nicholson, Assistant Dean of Nurses, Medical College of Virginia.

"The New Dietary Trend in Treatment of Cirrhosis" by Dr. Robley D. Bates, Chief, Internal Medicine, Grace Hospital, Richmond.

"Cost Control," by Joseph S. James, Assistant C.P.A. of the Commonwealth of Virginia.

The banquet speaker was Dr. Frank Apperly, Professor of Pathology, Medical College of Virginia, who talked on "What Is Cancer?" A business meeting was held on the second day of the convention.

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PATIENTS requiring diets low in sodium appreciate the wide, appetizing variety of low-sodium main dishes, salads and desserts made with Knox Unflavored Gelatine.

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FREE SPECIAL DIETARY GUIDE BOOKS

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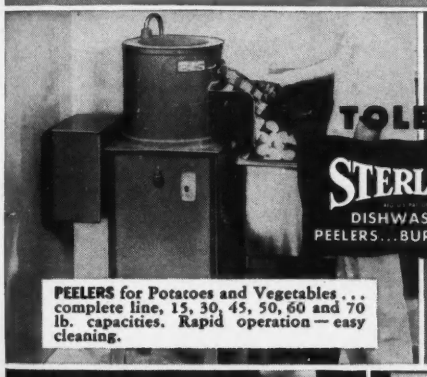

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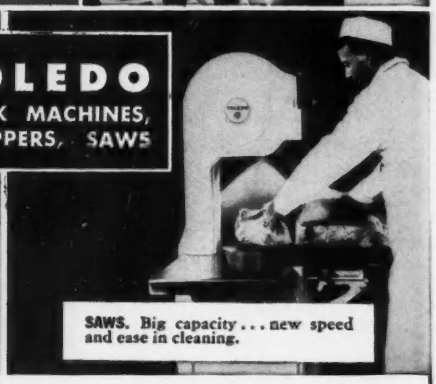

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At the *Richmond Dietetic Association's* September meeting, the program was on the training available for food workers at the Maggie Walker High School. Guest speakers were Dorothy Dunlop, Vocational Department, Richmond Public Schools, and a teacher from the Maggie Walker High School. In November, Hope Vanlanvingham, a nurse who spent several years in Panama, showed slides and spoke on "Panama and Costa Rica." In December, Dr. Charles C. Clayton, Medical College of Virginia, spoke on "Newer Fact in Nutrition."

West Virginia Dietetic Association. The winter issue of the *Bulletin of the West Virginia Dietetic Association* carries a comprehensive history of that state association. In it are described the way first "feelers" were put out about forming an organization and the difficulties of working out a constitution and affiliating with A.D.A. A list of the officers of the Association from the first president to the present day is given.

Wisconsin Dietetic Association. The spring conference of the Wisconsin Dietetic Association will be held at the University of Wisconsin, Madison, on March 24 and 25.

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Association Activities

Children's Bureau Committee. Eva N. Ylvisaker is A.D.A.'s representative on the Children's Bureau Advisory Committee on Maternal and Child Health and Crippled Children's Service. The Committee met in Washington on January 30 and 31 to discuss developments since their last meeting and to go over projected plans.

University of Utah Celebration. The One Hundredth Anniversary of the founding of the University was celebrated on Monday, February 27, in Salt Lake City. The Association was invited to participate in the celebration. Jo Beth Johnson, President of the Utah Dietetic Association, acted as our representative.

National Officers Attend State Meetings. Former President of A.D.A., Helen E. Walsh, was the A.D.A.'s official representative at the meeting of the *Oregon Dietetic Association* in Salem, February 11.

The *Kansas Dietetic Association* was invited to supply the luncheon speaker for the meeting of the Kansas Home Economics Association on March 18. Elizabeth Perry, A.D.A. President, will be the speaker.

Lillian Coover, President-Elect, will represent A.D.A. at the *Kentucky Dietetic Association* meeting, March 24 and 25.

Plans for New State Association. For the past few months the dietitians in South Dakota have been investigating the possibilities of organizing a state association. Membership in that state is now large enough to make a state association possible, and a planning convention will be held March 17 or 18 in Huron. Margaret L. Ross, Professional Activities Director of A.D.A., will meet with the group to help with the organization of the South Dakota Dietetic Association.

Placement Bureau Board Meets. On February 2 and 3, five of the nine members of the Placement Bureau Board met at the Association headquarters office with members of the A.D.A. staff. Those present were E. Evelyn Smith, Chairman, Ella Marie Eck, Edna Gilbert, Lucille Backemeyer, and Beatrice Hughes Hofsommer.

N.V.G.A. Convention. The annual convention of the National Vocational Guidance Association will be held in Atlantic City, March 27 to 30. A.D.A. is participating in two ways at this meeting. Our exhibit, "Dietetics, The Career with a Choice" will be shown along with other educational exhibits during the entire meeting. In addition, we have been invited to supply a speaker at a sectional luncheon. Chairman of the meeting will be Gertrude Forrester, who spoke on vocational guidance at A.D.A.'s Boston meeting in 1948. The subject to be discussed at the luncheon is "Enlisting the Cooperation of Civic and Professional Groups."

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A.D.A. Member Prepares Leaflets. Doris Zumsteg, Director, Consumer Service Department, General Baking Company, has prepared two excellent leaflets, "Introducing Your Hospital Dietitian" and "A+ at Lunchtime." The first describes the activities of the hospital dietitian and her relation to the patient. We hear that in some hospitals each patient receives one of the leaflets on his tray. The other leaflet deals with the dietitian in the school lunch program and is directed to the parents of school children. Because this material is so effective for public relations purposes, A.D.A. is placing samples of the two leaflets in the Vocational Guidance and Publicity Kits to familiarize dietitians with them.

Publicizing Kodachrome Slides. The requests for the use of the Kodachrome slides are coming in rapidly, and the schedules are almost completely filled for March, April, and May. However, there are still a number of members who are not familiar with the slides and their availability for use at career days and other local activities. A mimeographed pamphlet has been prepared to describe each slide and to give information on the way to reserve them. This leaflet has been sent to presidents of state and local associations, vocational guidance, professional education, and public relations chairmen.

New Literature Publicized. The new A.D.A. literature is being publicized in a number of ways by the national Association. Copies of the poster, *Dietetics, A Career for Better Living*, the fact sheet. *Dietitians Today*, and the revised A.D.A. Descriptive Folder have been sent to presidents of state associations, chairmen of public relations, vocational guidance, professional education, and press relations, and to editors of state bulletins. They have also been sent to the directors of approved internships, the superintendents or directors of institutions where approved internships are given, and to heads of home economics departments in colleges and universities. This material is also being sent to the presidents and secretaries of the branches of the National Vocational Guidance Association.

Dietitians Today and the Descriptive Folder have, in addition, been mailed to a representative group of hospital administrators and to presidents of allied associations. Educational editors and women's page editors of the major daily newspapers throughout the country have received the pamphlets, too.

The prices of the three pieces are:

Poster.....5 cents per copy
Dietitians Today.....2 cents per copy
Descriptive Folder.....5 cents per copy

All of this literature is available in quantity to state and local associations and to individual members.

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News of Advertisers

A new book, *Nutritional Data*, has been released by *H. J. Heinz Company* to physicians, nutritionists, and dietitians. This publication, a 9 by 5½ in., spiral-bound book, is the successor to the twelfth edition of the company's widely used "Nutritional Charts Book," which was first published in 1934. In *Nutritional Data* are included sections on vitamins, the essential elements, proteins and amino acids, the availability of nutrients, signs and symptoms of malnutrition, the metabolism and action of foods, human nutritive requirements, planning diets for good nutrition, and tables of food composition and nutritive value. The authors of the new book are Dr. H. A. Wooster, Jr., and Dr. F. C. Blanck of the Heinz Nutritional Research Division, Mellon Institute, Pittsburgh.

The Canned Meats Division of *Wilson & Co.* is now offering its B-V meat extract in a new 8-lb. tin. Primarily designed for institutional use, the new tin —called "Big Bertha"—has been planned to eliminate frequent reordering by large quantity users. The 20-oz. "Big Boy" jar is still available.

"For Protein Plus, Use STARLAC" is the title of a new booklet put out by *Borden Company* showing uses for that product in obstetrics and pediatrics, internal medicine, surgery, and burn therapy. The publication was written for professional persons—physicians, dietitians, and nutritions—rather than for laymen. Tables giving the composition of STARLAC, its food value, and comparisons of protein value and utilization of other foods and STARLAC are included, as well as eighteen recipes for its use in reliquefied form.